

Psychopathy and the Ability to Detect Cheaters: An Evolutionary Perspective

by

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Dedication

To Josh, thank you for being the amazing supportive man that you have been throughout this degree, the last degree, and the next. I hope you know that it is because of you I am able to chase my dreams.

To my daughter Adelaide, thank you for being the inspiration I need to always be my best self. Thank you for giving me the motivation to succeed even when the odds are stacked against me.

To my family, by blood and by law, thank you for believing in me and for always encouraging me to be my very best. I would not have gotten this far without you.

Abstract

This research examined psychopathy as an evolutionary adaptation that involves cheating and deception. I theorized that this strategy should be associated with certain abilities. This research examined the association between psychopathic traits and the ability to detect cheaters, altruism, deception, and psychopathic traits. Results indicated that psychopathic traits were not significantly associated with the ability to detect cheaters or altruism. Results indicated that high Factor 1 psychopathy scores, and low Factor 2 psychopathy scores, were indicative of higher ratings of deception when viewing deceptive videos. Conversely, when viewing truthful videos, Factor 1 was a significant predictor of higher ratings of deception. Finally, our results indicated that total psychopathy scores were associated the ability to identify psychopathic traits in others. Taken together the results provide mixed support for the evolutionary perspective of psychopathy.

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Introduction

As the study of psychopathy is a relatively young one in the field of personality research, there is a great deal of debate on the manner in which psychopathy should be defined and measured (Edens, Marcus, Lilienfeld, & Poythress Jr, 2006; Lilienfeld & Andrews, 1996; Lilienfeld et al., 2012; Miller & Lynam, 2012).

One of the current debates is in regards to whether or not psychopaths represent a specific type of individual, or whether psychopathy may be dimensional (Edens et al., 2006; Harris, Skilling, & Rice, 2001). The first perspective is that psychopathy is natural class, where an individual either is, or is not, a psychopath (Harris et al., 2001). The second perspective is that psychopathy is constellation of traits that exists on a continuum (Edens et al., 2006). Edens et al. (2006), for example, examined the structure of psychopathy and found no support for a dichotomous structure. They used their results as support for the presence of a dimensional structure. The current research endorses the dimensional perspective.

Another debate in the research of psychopathy surrounds how psychopathy should be studied. Traditionally psychopathy has been studied as a personality disorder, however recently some researchers have suggested that it should be studied from an adaptive perspective (Lilienfeld & Andrews, 1996; Lilienfeld et al., 2012). The current research honours this adaptive perspective of psychopathy, and aims to investigate whether or not there are specific adaptive abilities associated with psychopathic traits. Specifically the current research builds off the theory put forth by Mealey (1995), who suggested that individuals high in certain psychopathic traits may have a history of employing cost/benefit analyses (as explained by game theory; Dawkins, 1976) to inform their behaviour and interactions with others. The current work proposes that the cost/benefit analyses employed by individuals high in psychopathic traits may

allow for a better understanding of the victim selection techniques employed by individuals (Mealey, 1995). More specifically, individuals high in psychopathic traits may be using a cheater detection mechanism, based on a cost/benefit analysis, to determine which individuals are safe targets for exploitation (those not employing cheater strategies), and which individuals are too costly to encounter (individuals who are employing a cheater strategy, and who may be attempting to cheat them). Research has shown that the general population is skilled at identifying both cheaters and altruists (Cosmides & Tooby, 1992; Brown & Moore, 2000), and thus the current work proposes that psychopathy may be associated with these abilities as well. It is hypothesized that this ability is present in the non-psychopathic population in order to prevent contact with individuals who would cost a cooperative individual resources (cheaters), and to facilitate cooperation with individuals likely to engage in a fair exchange of resources (Cosmides & Tooby, 1992; Brown & Moore, 2000; Mealey, 1995). It is suggested that this same ability, to a greater extent, may be present in the psychopathic population in order to allow these individuals to avoid costly encounters with fellow cheaters, and locate individuals from whom they could easily exploit resources. The following review will clearly define the relevant major concepts, such as psychopathy and game theory, which are essential to understand in order to fully explain the perspective of the current research.

Psychopathy

Psychopathy is traditionally viewed as a personality disorder, characterized by individuals who con, manipulate, and destroy others in order to meet their own needs (Hare, 1993). It is typically assessed in offender samples using the Psychopathy Checklist-Revised (PCL-R; Hare, 2003) which breaks psychopathy down into two factors, that can be split further into four facets (Hare & Neumann, 2008). Factor 1 is associated with interpersonal

characteristics and it can be divided into Interpersonal Manipulation and Callous Affect.

Interpersonal Manipulation includes items that assess: glibness, a grandiose sense of self-worth, pathological deception, and manipulation. Callous Affect measures characteristics such as: a lack of guilt or remorse, general shallow affect, callousness, and an inability to accept responsibility for one's own actions. Factor 2 is associated with the antisocial lifestyle aspects of psychopathy, and is comprised of Erratic Lifestyle and Antisocial Behaviours. Erratic Lifestyle includes various characteristics such as a need for stimulation, parasitic lifestyle, irresponsibility, and impulsivity. Antisocial Behaviours includes the behavioural aspects of psychopathy such as poor behavioural controls, early behaviour problems, youth delinquency, and a varied criminal history (Hare & Neumann, 2008).

Although traditionally viewed as a personality disorder, some investigators are now studying psychopathy from an evolutionary perspective, viewing it, not as a disorder, but as a life strategy or an adaptation (Barr & Quinsey, 2004; Book & Quinsey, 2004; Mealey, 1995; Seto, Khattar, LaLumiere, & Quinsey, 1997). When studied from this evolutionary perspective, psychopathy is explained via a frequency-dependant life history strategy, in which psychopathic individuals fill a specific niche within society (Book & Quinsey, 2004; Mealey, 1995). As a frequency dependant strategy psychopathy would exist as a small subsection of the population outnumbered by other non-psychopathic life strategies (Glenn, Kurzban, & Raine, 2011). Psychopathy is theorized to exist in about 1% of the population, which would fit the notion of a frequency-dependant selection (Hare, 1996).

Krupp, Sewall, Lalumière, Sheriff, and Harris (2013) proposed that there are certain factors that call into question the idea of psychopathy as a disorder. The authors employed Wakefield's (1992) definition of a disorder as a *Harmful dysfunction*, to support their perspective. The

Harmful dysfunction theory states that in order for psychopathy to be considered a disorder it needs to fulfill two criteria, (1) it needs to cause harm to the subject or others, and (2) Its symptoms need to be caused by a failure of a mechanism, and not act an adaptation to a specific environment (Krupp et al, 2013). There is no doubt that individuals high in psychopathic traits fulfill the first criteria, they are parasites causing harm wherever they go (Hare, 1993). The second criteria, however, is not as clear. Psychopathy is associated with behaviour that would be considered different from the non-psychopathic population (pathological deception, manipulation, parasitic tendencies, shallow affect; Hare, 1996). However, Wakefield (1992) argues that different does not necessarily equate to dysfunctional. It can be argued that individuals high in psychopathic traits are actually very adapted to, and functional within, their environment (Glenn et al., 2011; Mealey, 1995). Although some argue that psychopathy is more akin to a harmful mutation than to an adaptation (Miller & Lynam, 2012), it is possible that the “symptoms” of psychopathy, such as a lack of fear and remorse may actually serve to assist psychopathic individuals in maximizing survival and reproductive fitness. Their lack of fear, for example, could be what allows them to appear charming, calm, and charismatic to others, even under the most intimidating of circumstances, thus luring others into parasitic relationships, which in turn, serve the psychopathic individual (Glenn et al, 2011). This returns us to the idea of difference not necessarily equating to disorder (Wakefield, 1992). Although there are most definitely differences between an individual high in psychopathic traits and the average non-psychopathic individuals, there are certainly psychopaths who are very successful at using their differences to maximize their success (Boddy, 2006; Mullins-Sweatt, Glover, Derefinko, Miller, & Widiger, 2010). To explore the idea of psychopathy as an adaptive selection, it is important to

understand the theoretical position on which this argument is based. An examination of the profile of adaptive psychopathy, and of game theory will follow.

The Profile of Adaptive Psychopathy

There has been much debate about how psychopathy should be defined and measured (Lilienfeld & Andrews, 1996; Lilienfeld et al., 2012; Miller & Lynam, 2012, Skeem & Cooke, 2010). Some psychopathy researchers feel that psychopathy is inherently maladaptive, should include measures of criminal behaviour, and should necessarily relate to measures of other maladaptive qualities (Miller & Lynam, 2012). However, recently there has been expanded interest in studying psychopathy from an adaptive perspective (Lilienfeld & Andrews, 1996; Lilienfeld et al., 2012), and the belief that criminal behaviour is not a central construct of psychopathy (Skeem & Cooke, 2010).

What has yet to be made entirely clear is what exactly adaptive psychopathy looks like. To understand the profile of adaptive psychopathy the research outlining successful psychopathy should be examined. The successful psychopathy literature examines individuals high in psychopathic traits who are able to thrive and survive (Mullins-Sweatt et al., 2010). These individuals can be thought of as very adaptive, as they seem to be able to capitalize on their psychopathic traits. Successful psychopathy can be differentiated from the traditional (maladaptive) forms of psychopathy by higher levels of conscientiousness, higher levels of Factor 1 traits, and lower levels of Factor 2 traits (Mullins-Sweatt et al., 2010). This body of research suggests that adaptive psychopathy should be associated with high Factor 1 traits, and low Factor 2 traits (Lilienfeld & Andrews, 1996; Lilienfeld et al., 2012; Mullins-Sweatt et al., 2010). As such, the current work will examine the construct of adaptive psychopathy from this framework.

Game Theory

Game theory is a cost/benefit analysis of behaviour in competitive settings (Dawkins, 1976). It has been used to analyze how certain life strategies may have evolved, based on how and when certain strategies either cost an individual or benefit them (or both), and how and when this cost/benefit interaction can be stable and adaptive (Sigmund, 1993). Game theory can be understood through the Dove/Hawk scenario, where there are two different strategies within a species to win certain resources (Dawkins, 1976). The Hawk, will always show aggression and this aggression will always escalate into a fight. The Hawk will fight until the encounter is over, emerging either as the victor, or the heavily injured (even fatally injured) loser. The Dove will show aggression, through posturing and other displays, but will inevitably run if a fight is imminent. The cost of running from a fight is lower than the cost of losing a fight and being injured, but the rewards associated with winning (the payoff) is also high. When a Dove faces another Dove, the one who endures the most posturing (the cost perhaps being the expended energy of the display), wins the encounter (receiving all of the payoff). The Dove that retreats and refuses to continue posturing has to face the costs associated with the display, with none of the payoff. The Hawk when faced with another Hawk will fight, possibly even to the death, until a victor emerges (the cost of injury is high, much higher than the cost of an aggressive display, but so is the payoff). When a Hawk encounters a Dove, they may both begin by posturing, however, the Hawk will always initiate a fight, the Dove will always retreat from the Hawk, and the Hawk will always be victorious. The Dove may never have to pay the high costs associated with sustaining an injury in an encounter, but it will also never win the payoff when facing a Hawk. A Hawk will always win against a Dove, but risks great injury when approached by another Hawk. Simulations have shown that neither the Hawk nor the Dove strategy would be

particularly stable, as neither would allow for a stable population of that particular strategy over time (Dawkins, 1976). A more stable strategy is one referred to as the retaliator. A retaliator begins by behaving like a Dove, however, when attacked instead of retreating, a retaliator will retaliate (Dawkins, 1976). In this situation cooperation can emerge, where violence does not occur in every encounter, but when it does occur no one side is forced to flee unable to defend themselves. In a society composed of retaliators, who behave cooperatively, but defend themselves against attacks, the psychopath can be thought of a proper-retaliator (Book & Quinsey, 2004). The proper-retaliator acts like a retaliator, but with bursts of unpredictable aggression (Dawkins, 1976, Book & Quinsey, 2004). Thus they will begin by behaving like a Dove, but will have bursts of escalating aggression. If no retaliation occurs it will continue to attack, if retaliation does occur it will resume Dove like behaviour (Dawkins, 1976). A psychopath will initially appear to be cooperative with their victims (like a Dove), this pretence is needed to establish a level of trust (Frank, 1988). They will, however, implement random bouts of escalating aggressive behaviour, and are highly reactive in response to a perceived attack (Book & Quinsey, 2004). A psychopath will begin by behaving like a Dove or a retaliator, but by implementing random bouts of aggression they fail to follow the rules of these strategies. This strategy of behaving like a dove, with bursts of aggression and cheating has also been deemed the Cheater-Warrior Hawk strategy (Book & Quinsey, 2004).

Game theory can also be understood in terms of the Prisoner's Dilemma game. The Prisoner's Dilemma is a game that is played in pairs, that illustrates why two individuals might not cooperate, even though it would be in their best interest to do so (Cosmides & Tooby, 1992). In this game players can either defect against or cooperate with their opponent. If a player defects and their opponent cooperates, they receive a large prize. If a player cooperates and their

opponent defects, the player will receive a large penalty. If both players cooperate then both players receive a moderate prize, and if both players defect then both players face a minor penalty (Dawkins, 1976). In general, if only one game is played, participants should choose to defect, as this is the safest strategy. If iterated games are played, cooperation tends to emerge, where a player only retaliates if they have been defected against, as it is in the long-term best interest of both players to cooperate, as both will consistently receive moderate prizes (Cosmides & Tooby, 1992). Simulations have illustrated that the most successful strategy for this particular game is a tit-for-tat strategy. Similar to a retaliator, one cooperates unless defected against, and then one will retaliate accordingly, and then resume a cooperative strategy (Cosmides & Tooby, 1992). Similar to the prober-retaliator strategy an individual high in psychopathic traits would be expected to begin encounters by behaving like cooperator, or even a tit-for-tat player (in order to maintain a certain level of trust), however, these individuals would implement random bouts of defection. Bearing this strategy in mind, if an individual high in psychopathic traits were encountering the same players over and over again they could potentially develop a reputation as an individual who does not abide by the rules of fair play.

Psychopathy has been viewed as particular strategy employed by a small group of cheaters amongst a larger group of cooperators (Book & Quinsey, 2004; Mealey, 1995). Individuals high in psychopathic traits will behave cooperatively in order to lure in fellow cooperators, however they are not consistent with their cooperative behaviour. Theory suggest that the reason individuals high in psychopathic traits need to begin encounters by behaving like a dove is because, as a predator, psychopaths need to be viewed as cooperative and trustworthy to gain the trust of their potential victims (Frank, 1988). It is theorized that in these simulated encounters individuals high in psychopathic traits would cheat, defect, and behave aggressively,

thus not following the rules of fair play employed by cooperators and retaliators (Book & Quinsey, 2004). This is in keeping with the research that suggests that psychopaths cheat, con, manipulate, and behave aggressively in their encounters with others (Book & Quinsey, 2004; Cima & Raine, 2009; Hare, 1993). The concept of the Cheater Warrior-Hawk (Book & Quinsey, 2004), or the proper retaliator (Dawkins, 1976) is connected to the theory that psychopathy can only exist in a frequency based model; they have to exist as a small subsection of society in order to reap the evolutionary benefits of being antisocial (Mealey, 1995). The logic underlining why this strategy would be successful as a frequency dependent selection can be understood through two explanations. The first explanation is that in order to function within society individuals high in psychopathic traits need to be able to cheat and manipulate, then move onto their next target without encountering the same individual twice or developing a reputation. The cost of developing a negative reputation to an individual high in psychopathic traits would be the inability to locate potential victims who would be willing to enter into a parasitic relationship with them. The second explanation is that individuals high in psychopathic traits need to avoid encountering other cheaters, as this poses an extensive risk to them. Attempting to cheat someone, who is, in turn, attempting to cheat you would result in a very costly interaction, where both parties are paying the cost of the encounter, yet neither acquire any of the rewards. Thus, if individuals high in psychopathic traits exist only as a small sub-section of the larger population, their probability of encountering another psychopathic individual would be relatively low. A mechanism that would serve in the prevention of engaging with another cheater would be one that enables individuals high in psychopathic traits to identify other hawks, defectors, or cheaters. Studies have shown that the general population has some natural propensity to detect a cheater (Cosmides & Tooby, 1992). It is logical to assume that a psychopath would have this

propensity to an even greater degree as it would be very costly for them to encounter another cheater (a Hawk encountering a Hawk). Furthermore, it should be a great deal easier for an individual high in psychopathy to identify other cheaters, as they would be very familiar with the cheating strategy, and thus, more readily able to identify it. One method to test if this tendency is present is the Wason Selection Task.

Wason Selection Task for Cheater Detection

The Wason selection task was originally designed to test the theory that individuals reason and learn through hypothesis testing (Cosmides & Tooby, 1992). The Wason selection task has a participant decide whether or not a conditional contract in the form of “If P, then Q” has been violated by scenarios represented on four different cards (Brown & Moore, 2000). The rule can only be violated if P is true and Q is false.

Social Contracts. When used as a strict reasoning exercise to test conditional rules participants do very poorly. Conversely, when used in the context of social contracts, participants do exceedingly well (Cosmides & Tooby, 1992). This technique uses a cost/benefit scenario where if one pays the costs then they may receive the benefits. An example of a social contract is: if you receive the benefit (P), then you pay the cost (Q). Participants are then presented with four cards with which to test whether or not the conditions have been met (Cosmides & Tooby, 1992). These cards are double sided, and have to be flipped to test the hypothesis. For our example one side of each card would have whether or not the benefit was received, and the other side would indicate if the cost was paid (see Figure 1).

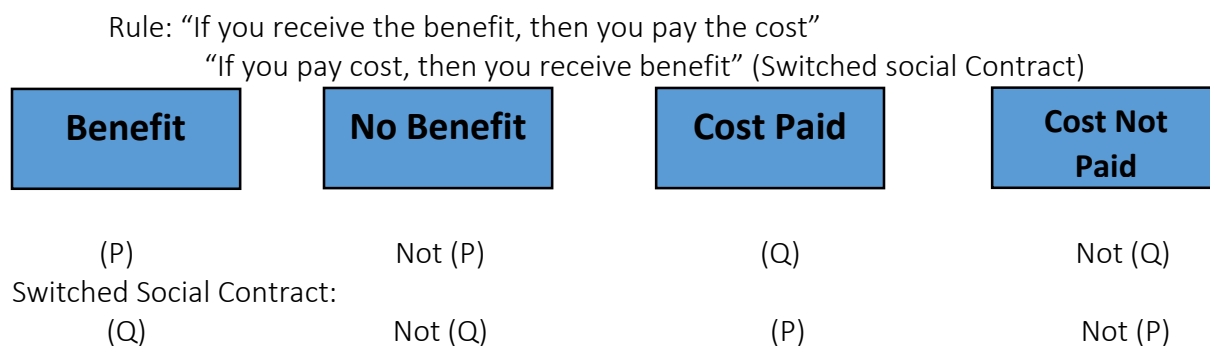


Figure 1. An example of the Wason Selection task, which switch social contract answers.

To test the hypothesis that this rule was being followed one would flip card 1 to ensure that the other side indicated that person had paid the cost, and card 4 would also have to be flipped because this individual has not paid the price and so should not have received the benefit. The two cards that are flipped represent the benefit accepted and cost not paid conditions. Card 2 would not have to be flipped because the benefit was not received, and so no contract was made. Card 3 would not have to be flipped as the rules do not state that one has to receive the benefit if one pays the cost. The appropriate logic based response to any question on the Wason Selection task is to select the options that correspond with (P) and Not (Q).

Cheater Detection. From our social contract example it would appear that people are adept at identifying whether or not someone was cheating based on a specific rule, if P then Q. This cheater detection adaptation has been demonstrated by using the Switched Social Contract scenario (Cosmides & Tooby, 1992) (see Figure 2). The Switched Social Contract is based on a switched rule such as: if you pay the cost (now referred to as (P)), you receive the benefit (now referred to as (Q)). In the switched social contract situation (P) refers to the cost being paid, and (Q) now refers to the benefit being received. If a person was utilizing logic to prove this rule was being followed they would have the flip card two (Not (Q)), to ensure that the person had not paid the cost, and card three (P) to ensure that the person had received the benefit. However, research has shown that participants still tend to select card 1 Benefit (Q) and card 4 Cost Not

Paid (Not (P))), which is not the logical answer to the switched logic question of *is the rule being violated*, but *is* the answer to the question of *is this person being cheated* (Cosmides & Tooby, 1992). By employing cheater detection versions of the Wason Selection task it will enable us to determine whether or not psychopathy is associated with this tendency to detect cheaters.

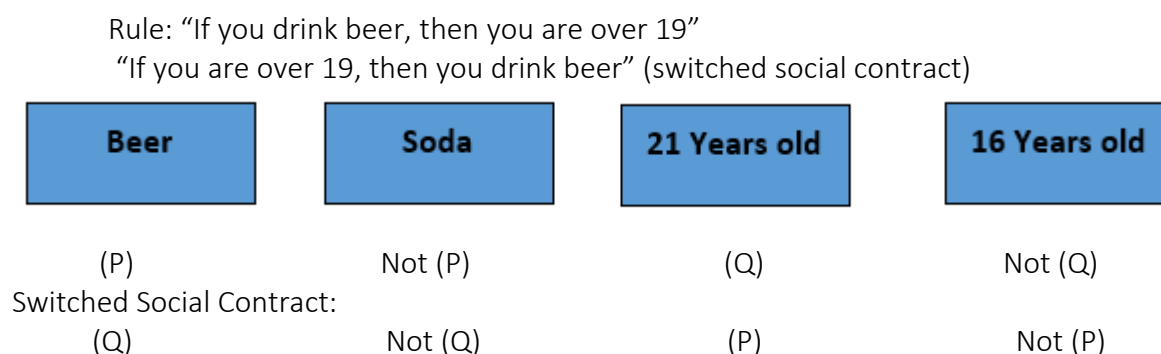


Figure 2. An example of a Wason Selection task, cheater version, with switched social contract answers.

Wason Selection Task for Detecting Altruism

Another mechanism that would be beneficial to individuals high on psychopathic traits would be one which enables these individuals to identify altruists. It has been shown that the propensity to detect altruists, similar to the propensity to seek out cheaters, is present in the general population (Brown & Moore, 2000). It is theorized that this ability is an evolutionarily developed skill which enabled cooperators to identify other cooperators with whom they can fairly exchange resources (Brown & Moore, 2000). It is logical that psychopathy would also be associated with the ability to detect altruists. Altruists, with their kind, generous, and selfless nature would make ideal victims for the psychopath's manipulative, deceptive and parasitic nature. Studies have already shown that individuals high in psychopathy have the ability to identify vulnerability and emotions in others (Book, Quinsey, & Langford, 2007; Wheeler, Book, & Costello, 2009). Having the ability to identify vulnerable individuals, who are prone to

altruism, would further assist psychopaths in selecting appropriate victims. Furthermore, the ability to detect an altruist would be another means by which to avoid other cheaters as it is impossible to be a cheater and an altruist at the same time.

Altruism Detection. It has been shown that the Wason selection task can also be used to elicit an altruism detection mechanism in a similar way that it is used to elicit the cheater detection mechanism (Brown & Moore, 2000). Participants would be required to identify altruistic people within the Wason selection task, by determining whether or not a specific type of social contact was being followed. An example of an altruism detection version of the Wason selection task would be to tell participants that if a person follows a specific rule then they are not altruistic, participants would then be asked to indicate the two cards they would need to select in order to determine whether a person was altruistic (see Figure 3).

Rule: "They give blood, they accept payment"

"They accept payment, then they give blood"(Switched social contract)

Accepts Payment	Does not Accept Payment	Gives Blood	Does Not Give Blood
(Q)	Not (Q)	(P)	Not (P)
Switched Social Contract:			
(P)	Not (P)	(Q)	Not (Q)

Figure 3. An example of a Wason Selection task, altruism version, with switched social contract answers.

The answer of P and Not (Q) would indicate that the individual was employing an altruism detection mechanism. During the switched social contract scenario Accepts Payment (P), and Does Not Give Blood Not (Q) corresponds to the correct response, but is not the response that would indicate that altruism detection was present. Interestingly, the research suggests that participants do not employ logic to solve switch social contact problems, rather that

participants are still employing an altruism detection mechanism and selecting Not (P) and (Q) (Brown & Moore, 2000).

The current research aims to examine the idea that psychopathic traits may be associated with higher accuracy in both the cheater and altruism detection versions of the Wason selection task. This is based on the idea that psychopaths may have evolved to identify other cheaters in order to protect themselves from dangerous and costly interactions, and to identify altruists, who would be the ideal target in their victim selection.

Deception Detection

A practical example of cheater detection would be the ability to detect deception when interacting with others. The ability to detect if others are being deceptive would protect an individual from being taken advantage of. For individuals high in psychopathic traits, it could potentially ensure these individuals are not interacting with other cheaters. There has been some support for the idea that psychopathy may be associated with higher degrees of accuracy in detecting deception from video clip stimulus (Lyons, Healy, & Bruno, 2006). There has also been some contrary findings indicating that individuals high in psychopathy are not accurate at detecting deception from written narratives (Peace & Sinclair, 2012). This discrepancy can be explained by examining the literature that investigates certain characteristics that are associated with accuracy in detecting deception, and by assessing the importance of the methods employed by each study.

Practice. Research investigating deception detection has identified certain characteristics which are associated with more accuracy in predicting deception. One of these characteristics is practice. There is evidence suggesting that individuals in occupations that involve the need to frequently decipher truths from deceptions tend to be better at identifying the specific kinds of

lies they are exposed to on a regular basis (O'Sullivan & Ekman, 2004). A study conducted by O'Sullivan and Ekman (2004), found that police officers were very good at identifying deceptions based on criminal activity, but poor at identifying deceptions based on emotions. However, a group of therapists were very good at identifying lies based on emotions, but poor at identifying lies based on criminal activity. The researchers theorized that this pattern of associations was present because specific occupations would have a great deal of practice with, and exposure to certain types of deception. In their everyday interactions with patients, therapists would have to identify emotional deceptions, but would rarely encounter lies based on criminality. Conversely, police officers would encounter and decipher lies based on criminal behaviour daily, yet would rarely encounter emotional deception (O'Sullivan & Ekman, 2004).

Although, it is uncertain whether or not there would be frequent contact with deceivers in the professional lives of individuals high in psychopathic traits, their exposure to lies is certainly a daily occurrence. It has been well established that individuals high in psychopathy employ pathological deception on a regular basis, and in fact it is one of the defining features of psychopathy (Hare & Neumann, 2009; Cleckley, 1941). Pathological deception is central to the manipulation implemented by individuals high in psychopathy (Hare, 1996). These individuals may very well be exploiting their understanding of their own deceptive techniques in order to identify when deception is taking place. The current work theorizes that it is their own use of deception that acts as the practice and exposure necessary to facilitate accuracy in deception detection.

Wright, Berry, and Bird (2012) conducted a study examining the ability to detect deception in others. They had participants paired in partners, and instructed them to either deceive their partner or tell a truthful story on half of the trials. On the other half of the trials they

instructed the participants to listen to their partner and to determine whether or not their partner was being deceptive. The researchers found that those who could accurately detect a lie were able to produce statements that others found difficult to classify as deceptive or truthful. They theorized that there is a general deception ability, where the ability to deceive successfully is associated with the ability to detect deception accurately (Wright et al., 2012). It has already been illustrated that psychopathy is associated with deception (Hare & Neumann, 2009; Cleckley, 1941). There is also research suggesting that individuals high in psychopathy are also more believable when being deceptive (Billings, 2004; Klaver, Lee, & Hart, 2006; Mullins-Sweatt et al., 2010). If there is a deceptive general ability, as suggested by Wright et al. (2012), then individuals high in psychopathic traits may also have the ability to detect deception in others.

Emotion Detection. A great deal of literature has examined the assertion that the ability to perceive emotion from micro facial expressions may be paramount in the detecting of deception (Frank and Ekman, 2004; O'Sullivan & Ekman, 2004; Shaw, Porter, & ten Brinke, 2013). High stakes lies tend to be accompanied by certain emotions, such as remorse, fear, anger, and even excitement, these emotions need to be masked in order to be viewed by others as truthful (Shaw et al., 2013). This is the point at which the detection of micro expression becomes significant, during deception there is emotional “leakage”, when this occurs the incongruent emotions which are being hidden, often leak out in the form of micro expressions (Ekman & Friesen, 1969; Shaw et al., 2013). Consequently, the ability to detect and identify these incongruent emotions should aid in the detection of deception.

Research regarding whether or not psychopathy is associated with the ability to detect and identify emotions is mixed. Some research has indicated that psychopathy is associated with

such an ability (Book et al., 2007; Copestake, Gray, Snowden, 2013; Richell et al., 2003), and some research on psychopathy indicates that there is a deficiency in emotional intelligence (Blair, Jones, Clark, & Smith, 1997; Hare, 1993; Patrick, Bradley, & Lang, 1993). Psychopaths certainly have an emotional poverty in that they do not appear to experience emotion in the same range and depth as non-psychopathic individuals (Hare, 1993). Other studies have clearly shown that psychopaths lack certain startle responses (Patrick et al., 1993), and that they are less responsiveness to human distress cues (Blair et al., 1997). Conversely, there is evidence available indicating that although psychopathy is associated with the inability to experience emotions, it may not be associated with the complete inability to understand emotions. Book et al. (2007) demonstrated that psychopathy was associated with the ability to categorize emotions and accurately gauge their intensity, by simply showing psychopathic individuals pictures of faces and having them identify and rate emotions. Other studies have also indicated that psychopathy is not associated with a deficiency in the ability to recognize and categorize emotions when viewing faces (Richell et al., 2003). In a study using only the eyes as a stimulus, psychopaths were able to detect emotional state with the same level of accuracy as non-psychopathic participants (Richell et al., 2003). Consistent with the lie detection literature (Frank & Ekman, 2004; O'Sullivan & Ekman, 2004; Shaw et al., 2013), this ability to discern emotional states from facial cues would be an asset in a psychopath's ability to detect deception in others. This also explains why studies employing written deceptive narratives such as the ones employed by Peace and Sinclair (2012) had results indicating that psychopathy is not associated with the ability to detect deception. Individuals high in psychopathic traits may require information based on emotional displays in order to glean truthfulness.

Empathy. Although it has been theorized that the ability to identify emotions, a component of Emotional Intelligence (EI), is essential in deception detection (Shaw, Porter, & ten Brinke, 2013; O'Sullivan & Ekman, 2004; Frank and Ekman, 2004), research has indicated that some components of EI may actually be hindering the ability to detect deception. These components are associated with empathy and sympathy (Baker, ten Brinke, & Porter, 2013). Baker et al. (2013) showed participants international news clips of individuals pleading for the safe return of loved ones, in half of the tapes someone else was found to be responsible for the missing person, in the other half of the cases the individual pleading in the video was found responsible for the person being missing (thus they were telling a very high stakes lie). They asked participants to rate how truthful or deceptive the individuals' stories were, and also assessed EI. Participants who were high in EI components related to empathy and sympathy performed worse on deception detection tasks (Baker et al., 2013). The researchers theorized that there could be an empathetic blockage that occurs, where a person's own empathetic response to an emotional plea blocks out other important deception cues.

One of the defining characteristics of psychopathy is the inability to experience empathy. Psychopathic individuals are unable to put themselves in the shoes of others, and experience their emotions (Hare, 1993). Psychopathy should not be associated with this empathetic blockage, which prevents non-psychopaths from picking up on cues of deception (Baker et al., 2013). Although individuals high in psychopathic traits have been categorized as lacking in EI (Lyons, Healy, & Bruno, 2006; Malterer, Glass, & Newman, 2008), they do appear to possess the components of EI that would aid in deception detection (the ability to identify emotions from facial cues), and lack the components that would prevent them from having accuracy in deception detection (empathy and sympathy) (Copestake, Gray, Snowden, 2013).

Current Work

My thesis proposes to test whether psychopathy is associated with the ability to logically reason out indicators of cheating and altruism using the Wason Selection task (Cosmides & Tooby, 1992). I will also test the more practical association between psychopathy, and the ability to detect deception from video interrogation statements. Finally I will examine the accuracy with which participants high in psychopathic traits are able to rate the individuals within the videos on items associated with psychopathy. The two practical measures would attest to the proclivity of psychopathic individuals to identify other cheaters in order to avoid them, which is necessary in order to be successful in this specific frequency-based strategy. The hypotheses of this project are specific to Factor 1 and Factor 2 of psychopathy, and are premised on the theories surrounding successful/adaptive psychopathy. These successful psychopaths are suggested to be characterized by high Factor 1 scores, and low Factor 2 scores (Mullins-Sweatt et al., 2010). It is predicted that it is the ability to thrive and survive that would enable an individual high in psychopathic traits to avoid encountering rivals, and also enable them to locate potential victims. The predictions specific to deception detection are also premised on the research that suggests: that practice in deception (O'Sullivan & Ekman, 2004; Wright et al., 2012) (which is associated with the pathological deception component of Factor 1)(Hare, 1993), emotion detection (Frank and Ekman, 2004; O'Sullivan & Ekman, 2004; Shaw, Porter, & ten Brinke, 2013) (which is associated with the emotional characteristics of Factor 1 (Book et al., 2007)), and a lack of empathetic response (Baker et al., 2013) (which is a characteristic of the emotional aspects of Factor 1 (Hare, 1993)), are all uniquely associated with aspects of Factor 1.

It is hypothesised that Factor 1 (Interpersonal manipulation and Callous affect) will be associated with greater accuracy on the Wason Selection task cheater detection version

(Hypothesis 1). It is hypothesised that Factor 2 (Erratic Lifestyle and Antisocial Behaviour) will moderate the relationship between Factor 1 and scores on the Wason Selection task cheater detection version (Hypothesis 2). The current work proposes that the relationship between Factor 1 traits and scores on the Wason Selection task will be strongest when Factor 2 is low. It is hypothesised that Factor 1 (Interpersonal manipulation and Callous affect) will be associated with greater accuracy on the Wason Selection task altruism detection version (Hypothesis 3); and it is hypothesised that Factor 2 (Erratic Lifestyle and Antisocial Behaviour) will moderate the relationship between Factor 1 and the Wason Selection task altruism detection version (Hypothesis 4). Similarly, it is hypothesised that Factor 1 will also be associated with higher ratings of perceived deception when watching deceptive videos (Hypothesis 5), and that this relationship will be strongest when Factor 2 is low, such that Factor 2 will moderate the relationship between Factor 1 and ratings of perceived deception when watching deceptive videos (Hypothesis 6). Similarly it is hypothesised that Factor 1 will also be associated with higher ratings of perceived truthfulness when watching truthful videos (Hypothesis 7), and that this relationship will be strongest when Factor 2 is low, such that Factor 2 will moderate the relationship between Factor 1 and ratings of perceived truthfulness when watching truthful videos (Hypothesis 8). It is hypothesised that Factor 1 will be associated with greater accuracy in detecting psychopathic traits from suspect interrogation videos when rating individuals within those videos on items of the Self-Report Psychopathy Scale: Version III (Paulhus, Hemphill, & Hare, 2007)(Hypothesis 9). Finally, it is hypothesised that this relationship will be strongest when Factor 2 is low, such that Factor 2 will moderate the relationship between Factor 1 and ratings of psychopathic traits when watching suspect interrogation videos (Hypothesis 10). A summary of hypotheses can be found in Table 1.

Table 1

Predicted Independent Effects of Psychopathy Factors for Each Dependant Variable

Variables	Cheating	Altruism	Deception	Truthfulness	Psychopathy
Factor 1	Positive	Positive	Positive	Positive	Positive
Factor 2	No Prediction	No Prediction	No Prediction	No Prediction	No Prediction
Factor 1 x Factor 2	Significant	Significant	Significant	Significant	Significant

Note. Cheating = Wason selection task cheating version, Altruism = Wason selection task altruism version, Deception = ratings of perceived deception, Truthfulness = ratings of perceived truthfulness, Psychopathy = ratings of perceived psychopathy, N/S = Non significant

Method

Participants

One hundred and eighty-seven participants were recruited through Amazon's Mechanical Turk website in exchange for \$2.50, or through the social media website known as Facebook. Of the one hundred and seventy-five participants 59.4 were female, with a mean age of 36.02 year ($SD = 11.82$ years)

Materials

Demographics. A demographics questionnaire was used to ascertain information regarding participants' age, sex, ethnicity, and educational background (see Appendix F)

Wason Selection Task. Participants completed the Wason Selection task seven times, four different scenarios of the cheater detection version, and three different scenarios of the altruism detection version. The altruism detection tasks was adapted from previous studies (Brown & Moore, 2000; Fiddick & Erlich, 2010; Oda, Hiraishi, & Matsumoto-Oda, 2006) (see Appendix H), the cheater detection tasks were also adopted from previous studies (Cosmides & Tooby, 1992; Oda, Hiraishi, & Matsumoto-Oda, 2006; Fiddick & Erlich, 2010; Carlise & Shafir, 2005) (see Appendix I). Half of the versions of the Wason selection task were standard versions, and half were switched social contract versions. Participants were scores on their ability to select cards that corresponded to cheater and altruism detection mechanisms.

Psychopathy Measure. The Self-Report Psychopathy Scale: Version III (Paulhus, Hemphill, & Hare, in press) was used to assess psychopathy (see Appendix G). This is a well-established measure of sub-clinical psychopathy. The SRP III is a 64-item scale, which measures both factors, and all four facets of psychopathy. This measure was acceptably reliable in its overall measure of psychopathy ($\alpha = .93$), the subscales for Factor 1 and Factor 2 were also

adequately reliable ($\alpha = .91$ & $.88$, respectively) (Paulhus, Hemphill, & Hare, in press).

Responses are on a five point Likert scale 1 = Strongly Disagree 2 = Strongly Agree. Items on the scale include “I have cheated on a school test” and “I have shoplifted”.

Videos. Videos gathered during a previous study run through Forensic Psychology lab at Brock University were implemented. These videos show participants claiming have not to have stolen money from a wallet. Half of these participants were instructed to steal the money, and half of were not. Participants were told that if they were able to convince an interrogator that they were being truthful then they would win a cash prize. This reward is particularly important as studies have shown that in order to lie convincingly there has to be strong motivation to do so (Wright, Berry, & Bird, 2012; Carlucci, Compo, & Zimmerman, 2013; Frank & Svetieva, 2012). Participants were shown 4 truthful videos and 4 deceptive videos. Participants then rated whether they believed the individual in each of these videos was being truthful or deceptive on a ten point Likert scale (1 = very deceptive 10 = very truthful). Participants then rated each of the eight individuals from the video stimuli on 12 items of the SRP III, rephrased to assess how much participants felt the individual within the video fulfilled each specific characteristic or behaviour. This was used as an indication of how psychopathic they would rate each video participant (see Appendix J).

Procedure

Upon selecting to be a part of this study, participants were directed to the website www.Qualtrics.com, and were instructed to read and accept the terms outlined in a consent form provided to them (see Appendix B).

Participants then completed the demographics questionnaire, seven different scenarios of the Wason selection task (rotating between altruism and deception detection versions), and the

Self-Report Psychopathy Scale: Version III (Paulhus, Hemphill, & Hare, in press). Next the participants watched each of the eight videos one at a time, in random order. After completing a video, the participants responded to the truthful or deceptive question, as well as filling out the 12 rephrased items of the Self-Report Psychopathy Scale: Version III (Paulhus, Hemphill, & Hare, in press).

Following the completion of the questionnaires and video stimuli participants were presented with a debriefing form explaining the purpose of the study in more detail (see Appendix C).

Analytic Strategy

Analysis was begun by ensuring that the data met the assumptions of univariate normality, skewness and kurtosis were also examined via standardized skewness and kurtosis values. Furthermore, the data was examined to determine that it met multivariate assumptions, and finally the data was examined for multivariate outliers.

Two Poisson Regressions were conducted using Mplus 7.2 (Muthen & Muthen, 2013). The first Poisson Regression was used to test: a1) whether Factor 1 scores were associated with higher scores on the Wason selection task (cheater version); and a2) and to test whether Factor 2 scores moderated the association between Factor 1 scores and scores on the Wason selection task (cheater version). The second Poisson Regression was used to test: b1) whether Factor 1 scores were associated with higher scores on the Wason selection task (altruism version); and b2) and to test whether Factor 2 scores moderated the association between Factor 1 scores and scores on the Wason Selection Task (altruism version). The choice to implement Poisson Regressions was made because the outcome variables in each regression were count variables and count variables do not meet the assumption of a normal distribution. As each Wason selection task requires two

specific cards be selected to attain a correct response each task was out of two. As such, there was a possible total score of eight for the cheater version of the Wason selection task (which implemented four scenarios), and possible score of six for the altruism version of the Wason selection task (which implemented three scenarios).

Two simultaneous Ordinary Least Squares Regressions were conducted using Andrew Hayes Process in SPSS version 20 to analyse the first portion of our video data. The first regression was utilized to test: a1) if Factor 1 scores were associated with higher scores of perceived deception in the deception condition and a2) whether Factor 2 scores moderated the association between Factor 1 scores and perceived deception ratings. The second regression was utilized to test: b1) whether Factor 1 scores were associated with higher scores of perceived truthfulness in the truthful condition; and b2) whether Factor 2 scores moderated the association between Factor 1 scores and perceived truthfulness ratings. Participants rated four videos in each the deceptive and truthful condition, the average rating was taken for each condition.

A simultaneous Ordinary Least Squares Regressions was conducted in Andrew Hayes Process in SPSS version 20 to analyse my final hypothesis regarding the assessment of psychopathy in others as a function of one's own psychopathy scores. Participants' ratings of the videotaped individuals on the SRP III, and the SRP III scores of the individuals in the suspect interview videos were standardized. Absolute difference scores were calculated between standard predicted scores on the SRP III, and the actual standard SRP III scores of the videotaped individuals. The average difference score of the eight videos was calculated. The regression was utilized to test: a) whether Factor 1 scores were associated with smaller difference scores and; b) whether Factor 2 scores moderated the association between Factor 1 scores and difference scores.

Results

Assumptions and Multivariate Outliers

Examination of the descriptive statistics reveal relatively normal distributions for each of the variables, excluding the Wason selection altruism version which was positively skewed, and Wason selection task cheating version which was platykurtic. Standard skewness and kurtosis scores for each of the remaining variables all fell below 2.25 standard deviations, the highest being the skewness of psychopathy ratings which only reached a standard score of 2.33. It should be noted that the Kolmogorov-Smirnov test was significant for Factor 2, and for psychopathy ratings, however this test is known to be highly conservative. Through examination of their standard skewness and standard kurtosis scores and through the examination of histograms, P-P plots, and Q-Q plots it can be determined that a reasonable level of normality could be assumed for these variables. The normality of each of the remaining variables were also investigated in this manner (through the visual inspection of descriptives, histograms, P-P plots, and Q-Q plots), and all appear to be acceptably normal.

Prior to running the analyses a test of linear correlations was conducted (see Table 3). The relationship between each individual predictor and the criterion variables was plotted. Factor 1 shared a linear relationship with truthfulness, deception, and psychopathy ratings, however, it had non-significant relationships with both Wason selection task versions. Factor 2 shared a linear relationship with psychopathy ratings, but did not share a significant linear relationship with any of the other criterion variables.

Table 2

Descriptive Statistics for all Variables

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Skewness</i>	<i>SE</i>	<i>Kurtosis</i>	<i>SE</i>
Factor 1	187	75.38	17.97	.13	.18	-.18	.35
Factor 2	187	65.76	16.35	.40	.18	-.45	.35
WS Cheating	187	6.71	2.61	-.19	.18	-1.23	.35
WS Altruism	187	4.37	1.67	-.63	.18	-.66	.35
Deception Ratings	173	6.28	1.45	.09	.19	-.31	.37
Truthfulness Ratings	168	6.39	1.60	-.002	.19	-.62	.37
Psychopathy Ratings	145	1.11	.34	.93	.20	.34	.40

Note. WS = Wason selection task. Psychopathy Ratings = the average absolute difference score between predicted and actual SRP III scores.

Next the assumption of linearity was tested further. The independent variable (Factor 1) and the moderator variable (Factor 2) were plotted with the residuals from the truthful, deceptive, and psychopathy regressions, and no relationship was discernable through the examination of the fit line.

Regarding the assumption of specification, it seems that all relevant predictors were included in the model regarding my specific question. The literature on psychopathy frequently employs the use of the SRP III indicating that it is a reliable and valid measure of the construct (Paulhus, Hemphill, & Hare, 2007).

Note that the reliability of each measure was mentioned earlier, and that each measure was measured as being fairly reliable. The reliability of the 12 rephrased SRP III items employed in each of the 8 videos was calculated, and each video's SRP III, was found to be very reliable,

with alphas ranging from .91 to .94. It can be assumed that the assumption that measures are reliable and without error was reasonably met.

Table 3

Bivariate Correlations between Psychopathy Factors and Cheater Detection Measures

Variable	1	2	3	4	5	6	7
1) Factor 1	-	.66**	.06	-.07	-.19*	-.22**	-.27**
2) Factor 2		-	.05	-.11	-.03	-.14	-.23**
3) Wason Cheating			-	.64**	.03	.08	-.07
4) Wason Altruism				-	.08	.03	.06
5) Truthfulness Ratings					-	.49	-.01
6) Deception Ratings						-	-.27**
7) Psychopathy Ratings							-

Note. * $p < .05$, ** $p < .01$. Psychopathy Ratings = the average absolute difference score between predicted and actual SRP III scores.

To test the assumption of homoscedasticity a scatter plot was created, with standardized predicted values on the X axis, and the standardized residuals on the Y axis using the residuals from the truthful, deceptive, and psychopathy regressions. A line of fit was then included, from the examination of these plots it is apparent that no relationship is present, and thus it can be assumed that the assumption of homoscedasticity was met.

To test the assumption that the residuals are independent the plot of the standardised residuals and participant's identification numbers was examined, there was no relationship present for any of the sets of variables. Furthermore the results of the Durbin-Watson test of independence for the truthful regression was 2.08 which is within the acceptable range of 1.5-

2.5. The results of the Durbin-Watson test of independence for the deceptive regression was 2.08 which is within the acceptable range of 1.5-2.5. The results of the Durbin-Watson test of independence for the psychopathy regression was 1.97 which is within the acceptable range of 1.5-2.5. From this information it can be assumed that the assumption that residuals are independent was met.

The assumption of multivariate normality (normality of the residuals) was tested by creating a histogram and Q-Q plots to examine the distribution of the residuals for all sets of variables. The examination of these plots indicates that the residuals are normally distributed. The level of skewness and kurtosis was also examined directly, and the standard score for each fell below plus or minus 3 standard deviations (.45 and -1.24 respectively for the truthful regression, and .21 and -2.22 respectively for the deceptive regression), however, the residuals for the psychopathic regression were slightly skewed (with a standard skewness of 3.95), it's kurtosis levels were within the exactable range (.53).

To identify multivariate outliers the standardized residuals were examined to identify if any cases were $|3|$ standard deviations from the mean. There were no such cases. Cook's Distance were examined using a cut off of $|1|$ (Cohen, Cohen, West, & Aiken, 2003), and no such outliers were present for either sets of data. Examining DFFITS according the guidelines put forth by Cohen, Cohen, West, & Aiken (2003), all cases are well under $|1|$, which indicates that there are no cases that are largely influential.

Assumptions for the Poisson Regression

Unfortunately, the assumption of linear relationships between variables was not met for either regression. Factor 1 scores were not associated with scores on either version of the Wason

selection task, furthermore, Factor 2 scores were not associated with scores on either version of the Wason selection task. So results of the regressions should be interpreted with caution.

To test the assumption that the residuals are independent a plot of the standardised residuals and participant's identification numbers was examined, there was no relationship present for either of the set of variables.

When implementing the Poisson regressions additive changes were not expected, however, multiplicative changes are to be expected.

Finally testing was conducted to determine if over-dispersion was occurring. A scatter plot was created, with standardized predicted values on the X axis, and the standardized residuals on the Y axis using the residuals from the truthful, deceptive, and psychopathy regressions. A line of fit was included, from the examination of these plots it is apparent that no relationship is present, and thus it can be assumed that the assumption of over-dispersion was met.

Examining Hypotheses 1 and 2

A simultaneous Poisson Regression was conducted using Mplus 7.2 (Muthen & Muthen, 2013) to determine whether Factor 1 scores were associated with higher scores on the Wason selection task (cheater detection version), and also and to test whether Factor 2 scores moderated the association between Factor 1 scores and scores on the Wason selection task (cheater detection version).

Hypothesis 1 and 2: Analysis

No variable, including the interaction term was a significant predictor of the criterion variable. A summary of the results of the regression can be found in Table 4.

Hypotheses 1 and 2 Conclusions

Results from the simultaneous Poisson Regression failed to provide support for hypotheses 1 and 2. Support was not found indicating that Factor 1 scores were a significant predictor of scores on the Wason Selection task cheater detection version. Furthermore, support was not found indicating that Factor 2 scores moderated the relationship between Factor 1 and scores on the Wason Selection task.

Table 4

Hypotheses 1 and 2, Main Analysis: Summary of Simultaneous Regression Predicting Scores on the Wason Selection task Cheater Version

	<i>B</i>	<i>SE</i>	<i>p</i>
Factor 1	.0001	.0020	.86
Factor 2	.0010	.0010	.33
Factor 1 x Factor 2	.0010	.0001	.30

Examining Hypotheses 3 and 4

A simultaneous Poisson Regression was conducted using Mplus 7.2 (Muthen & Muthen, 2013) to determine whether Factor 1 scores were associated with higher scores on the Wason selection task (altruism detection version), and also and to test whether Factor 2 scores moderated the association between Factor 1 and scores on the Wason selection task (altruism detection version).

Hypothesis 3 and 4: Analysis

No variable, including the interaction term was a significant predictor of the criterion variable. A summary of the results of the regression can be found in Table 5.

Table 5

Hypotheses 3 and 4, Main Analysis: Summary of Simultaneous Regression Predicting Scores on the Wason Selection task Altruism Version

	<i>B</i>	<i>SE</i>	<i>p</i>
Factor 1	-.0010	.0020	.56
Factor 2	-.0001	.0010	.49
Factor 1 x Factor 2	-.0001	.0001	.60

Hypotheses 3 and 4 Conclusions

Results from the simultaneous Poisson Regression failed to provide support for hypotheses 3 and 4. Support was not found indicating that Factor 1 scores were a significant predictor of scores on the Wason selection task altruism detection version. Furthermore, support was not found indicating that Factor 2 scores moderated the relationship between Factor 1 and scores on the Wason selection task altruism detection version.

Examining Hypotheses 5 and 6

A simultaneous Regression in Andrew Hayes Process in SPSS version 20 was conducted to determine whether Factor 1 scores were associated with higher ratings of perceived deception when viewing deceptive videos, and also and to test whether Factor 2 scores moderated the association between Factor 1 scores and perceived deception ratings.

Hypothesis 5 and 6: Analysis

The significance test of the overall model was significant ($F(4, 168) = 4.40, p = .002$). Only the interaction term was a significant predictor of the criterion variable. The overall model

including the two predictors, and the interaction term accounted for 9% of the variance in perceived deception ratings. A summary of the results of the regression can be found in Table 6.

Simple slopes analysis. As the interaction was a significant predictor of ratings of perceived deception, the interaction was plotted to determine the pattern of the interaction. By examining Figure 4 it is apparent that the combination of low Factor 1 scores and low Factor 2 scores is associated with the lowest ratings of perceived deception, and that the combination of high Factor 1 scores, and low Factor 2 scores is associated with the highest ratings of perceived deception (lower scores are indicative of higher ratings of deception).

Table 6

Hypotheses 5 and 6, Main Analysis: Summary of Simultaneous Regression Predicting Ratings of Perceived Deception when Viewing Deceptive Videos

Independent Variable	<i>B</i>	<i>SE</i>	95% <i>CI</i>		<i>p</i>	R^2	<i>F</i>	<i>df</i>
			LL	UL				
						.0916	4.40	4,168
Factor 1	-.0156	.0100	-.0353	.0041	.12			
Factor 2	-.0060	.0113	-.0283	.0163	.60			
Factor 1 x Factor 2	.0012	.0004	.0004	.0019	.01			

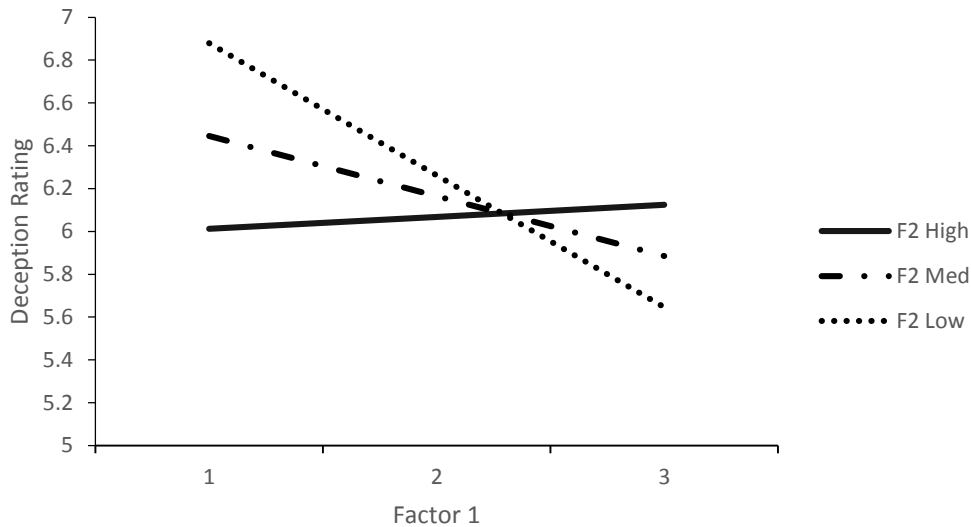


Figure 4. Interaction of Factor 1 and Factor 2 on ratings of perceived deception.

A simple slopes analysis was conducted to determine which slopes were significantly different than zero, a summary of the results can be viewed in Table 7. Results indicated that only the slope of the low Factor 2 line was significantly different from zero. These results provide support for hypothesis 6, such that high Factor 1 scores, low Factor 2 scores does represent the highest ratings of perceived deception.

Hypotheses 5 and 6 Conclusions

Results from the simultaneous regression provided some support for hypotheses 5 and 6. Support was not found indicting that Factor 1 scores were a significant unique predictor of ratings of perceived deception when viewing deceptive videos. Some support was found indicting that Factor 2 scores moderated the relationship between Factor 1 scores and ratings of perceived deception. Furthermore, results of the simple slopes analysis indicated that the slope of the low Factor 2 line was the only significant slope, and by examining the plot it was apparent that the combination of high Factor 1 and low Factor 2 scores was associated the highest ratings of perceived deception.

Table 7

Summary of Simple Slopes Analysis

	<i>T</i>	95% CI		<i>SE</i>	<i>P</i>
		<i>LL</i>	<i>UL</i>		
Low F2	-3.05	-.06	-.01	.01	.002
Moderate F2	-1.57	-.04	.00	.01	.119
High F2	.25	-.02	.03	.01	.801

Examining Hypotheses 7 and 8

A simultaneous Regression in Andrew Hayes Process in SPSS version 20 was used to determine whether Factor 1 scores were associated with ratings of perceived truthfulness when viewing truthful videos, and also and to test whether Factor 2 scores moderated the association between Factor 1 scores and ratings of perceived truthfulness.

Hypothesis 7 and 8: Analysis

The significance test of the overall model was marginally significant ($F(4, 163) = 2.39, p = .053$). Factor 1 was a significant predictor, all other predictors in the model were not significant. The overall model including the two predictors, and the interaction term accounted for 9% of the variance in ratings of perceived truthfulness. A summary of the results of the regression can be found in Table 8.

Hypotheses 7 and 8 Conclusions

Results from the simultaneous regression failed to provide support for hypotheses 7 and 8. Although, Factor 1 scores were a significant unique predictor of ratings of perceived

truthfulness when viewing truthful videos, it was in the wrong direction, indicating that Factor 1 scores were associated with lower perceived truthfulness ratings when viewing truthful videos. Furthermore, support was not found for the hypothesis that Factor 2 scores moderated the relationship between Factor 1 scores and ratings of perceived truthfulness.

Table 8

Hypotheses 7 and 8, Main Analysis: Summary of Simultaneous Regression Predicting Ratings of Perceived Truthfulness when Viewing Truthful Videos

Independent Variable	<i>b</i>	<i>SE</i>	95% <i>CI</i>		<i>p</i>	<i>R</i> ²	<i>F</i>	<i>df</i>
			<i>LL</i>	<i>UL</i>				
						.0585	2.39	4, 163
Factor 1	-.0277	.0092	-.0458	-.0097	.002			
Factor 2	.0161	.0095	-.0028	.0349	.09			
Factor 1 x Factor 2	-.0001	.0004	-.0008	.0007	.87			

Supplementary Analysis for Deception Detection and Truth Detection

Although looking at the patterns of associations between psychopathy and ratings of perceived deception and truthfulness were the primary interest of this body of research, the association between psychopathy and accuracy was briefly investigated to address this research question. To assess accuracy, the 10-point Likert scale question regarding perceived deceptiveness or truthfulness was dichotomized. For the deceptive condition a rating from 1 to 5 were given a score of 1, and ratings from 6 to 10 were given a score of 0. For the truthful

condition a rating between 1 and 5 were given a score of 0, and ratings from 6 to 10 were given a score of 1. These scores were added up for all eight videos to create an accuracy score. The bivariate correlations between Factor 1 scores, Factor 2 scores, and accuracy scores were calculated to determine if psychopathy was associated with accuracy in determining truthfulness and deceptiveness. The results of these analysis indicate that neither factor of psychopathy is significantly associated with accuracy scores (see Table 9).

Table 9

Supplementary Analysis: Bivariate Correlation Table for Psychopathy and Accuracy Scores

Variable	1	2	3
Factor 1	-	.66**	.02
Factor 2	-	-	.06
Accuracy	-	-	-

Note. ** $p < .01$.

Examining Hypotheses 9 and 10

A simultaneous regression in Andrew Hayes Process in SPSS version 20 was used to determine whether Factor 1 scores were related to accuracy in rating video targets on the SRP III. More specifically, it was expected that Factor 1 would be associated with lower difference scores between the rated and actual psychopathy scores of the video target. It was also examined, whether Factor 2 scores moderated the association between Factor 1 scores and difference scores.

Hypothesis 9 and 10: Analysis

The significance test of the overall model was significant ($F(1, 140) = 3.00, p = .02$), however, each of the individual predictors failed to be uniquely significant. The overall model

including the two predictors, and the interaction term accounted for 8% of the variance in the difference scores. A summary of the results of the regression can be found in Table 10.

Table 10

Hypotheses 9 and 10, Main Analysis: Summary of Simultaneous Regression Predicting Difference Scores

Independent Variable	<i>b</i>	<i>SE</i>	95% <i>CI</i>		<i>p</i>	R^2	<i>F</i>	<i>df</i>
			<i>LL</i>	<i>UL</i>				
						.08	3.00	1, 140
Factor 1	-.005	.006	-.018	-.007	.39			
Factor 2	.003	.008	-.019	.012	.67			
Factor 1 x Factor 2	.000	.000	-.000	.000	.87			

Table 11

Hypotheses 9 and 10, Supplementary Analysis: Summary of Simultaneous Regression Predicting Difference Scores from Total Psychopathy Scores

Independent Variable	<i>b</i>	<i>SE</i>	95% <i>CI</i>		<i>p</i>	R^2	<i>F</i>	<i>df</i>
			<i>LL</i>	<i>UL</i>				
						.08	11.76	1, 143
Total Psychopathy	-.003	.001	-.005	-.001	.001			

Table 12

Supplementary Analysis: Bivariate Correlation Table for Supplementary Total Psychopathy

Variable	1	2
Total Psychopathy	-	-.28**
Psychopathy Ratings	-	-

Note. ** $p < .01$. Psychopathy Ratings = the average absolute difference score between predicted and actual SRP III scores.

Hypotheses 9 and 10 Conclusions

Results from the simultaneous Regression failed to provide support for hypotheses 9 and 10. No individual predictor was significant, nor was the interaction term. Interestingly, the larger model was significant, indicating that psychopathy in general is associated with lower difference scores. As such a follow up regression was run examining total psychopathy scores predicting psychopathy difference scores (see Tables 11 and 12), this total psychopathy scores was a significant predictor of difference scores, and the unstandardized beta was negative, indicating that total psychopathy scores are associated with lower difference scores.

Discussion

The current study was designed to examine the hypothesis that psychopathy exists as a frequency-dependant life history strategy, and so should be associated with the ability to detect and avoid other individuals employing a cheating strategy. This stemmed from the theory that psychopathic traits are associated with a pure cost/benefit analysis approach to their encounters with others (Mealey, 1995). Psychopathic traits are associated with the ability to ignore emotional distractions, and focus purely on actuarial guidelines, based on behaviours that have been observed in the past (Mealey, 1995). This could enable individuals high in psychopathic traits to utilize information accumulated from previous encounters with other cheater strategists, encounters in which they were attempting to cheat individuals who were, in turn, attempting to cheat them. In these situations each individual pays the cost associated with the encounter, but where neither claims a prize. As such, by employing an emotionless, actuarial, cost/benefit analysis based on previous encounters individuals higher in psychopathy should be able to identify other cheaters with some accuracy. Indeed, Mealey (1995) has suggested that psychopaths could potentially become very adept at predicting the behaviour of others.

This study employed several methods of assessing these assertions. The Wason selection was used to determine if individuals high in psychopathic traits were able to detect cheaters using a logic-based games. Interrogation videos were employed to test the ability of those high in psychopathic traits, to identify individuals who were using a cheating strategy, via use of deception to convince an interrogator of their innocence. Finally, the same videos were utilized to determine if individuals high in psychopathic traits were able to more accurately identify psychopathic traits in others, simply by establishing an impression of their personality while viewing these interrogation videos. Specific hypotheses were created in regards to each of these

different methods, however, each was very similar in premise. That premise being that those higher in Factor 1 traits would be more accurate, and that Factor 2 scores would moderate the association between Factor 1 scores and scores on each of our measures. This was postulated on the assumption that the hallmark of the successful psychopath, an individual who leads a successful life, while evading incarceration, is an individual who is high on Factor 1 traits and low on Factor 2 traits (Mullins-Sweatt et al., 2010). These hypotheses are also based on research indicating that certain traits indicative of Factor 1, but not of Factor 2, are associated with more accuracy in detecting deception (practice in deception (O'Sullivan & Ekman, 2004; Wright et al., 2012), the ability to recognize emotions (Frank and Ekman, 2004; O'Sullivan & Ekman, 2004; Shaw, Porter, & ten Brinke, 2013), low empathy (Baker et al., 2013)).

Wason Selection Task

Hypotheses 1 and 2. Results did not demonstrate any support for hypothesis 1, which stated that Factor 1 scores (Interpersonal manipulation and Callous affect) would be associated with higher scores on the Wason Selection task cheater detection version. Factor 1 was not a significant predictor of scores on the Wason Selection task. Furthermore, no support was found for hypothesis 2, which stated that Factor 2 scores (Erratic Lifestyle and Antisocial Behaviour) would moderate the relationship between Factor 1 scores and scores on the Wason Selection task cheater detection version. The interaction term in this regression failed to reach significance.

Hypotheses 3 and 4. Results did not demonstrate any support for hypothesis 3, which stated that Factor 1 scores (Interpersonal manipulation and Callous affect) would be associated with higher scores on the Wason selection task altruism detection version, however, Factor 1 was not a significant predictor of scores on this version of the Wason selection task. Moreover, the results of the current work did not support hypothesis 4, which stated that Factor 2 scores (Erratic

Lifestyle and Antisocial Behaviour) would moderate the relationship between Factor 1 scores and scores on the Wason Selection task altruism detection version, as the interaction term in this regression was not significant.

These results indicate that perhaps psychopathy is not associated with an increased logical ability to detect cheaters and altruists. In fact, the results of this study indicated that participants in general did fairly well on these tasks. The mean for the Wason selection task cheating version was 6.71 out of a possible 8 and the mean for the Wason section task altruism version was 4.37 out of a possible 6. One of the potential explanations for these results is that participants in general were doing so well, that a type of ceiling effect was occurring, where there was not enough variability to determine whether or not psychopathy had any meaningful impact on Wason selection scores. Using the Wason selection task, Cosmides and Tooby (1992) found evidence that humans may have evolved a cheater-detection mechanism reporting that people in general do fairly well on these logic based paradigms designed to identify cheater-detection. Brown and Moore (2000) found similar results in regards to altruism detection measured via the Wason selection task. As people in general do so well on these paradigms, it could be the case that this measure is not sensitive enough to determine whether or not psychopathy is associated with an increased ability to detect cheaters and altruists.

Alternatively, there could be a very different explanation for why significant results were not found. Instead of applying a logical strategy to detect cheaters and altruists individuals high in psychopathy may be using strategies more associated with their knowledge of emotional displays, and their willingness to manipulate the emotions of others. Evidence for this explanation can be found in the literature that examines the use of non-verbal and verbal cues of psychopathic deception.

Research that examines the deceptive strategies of individuals high in psychopathy reveals that their strategies are not necessarily logical in nature. Perhaps by understanding how individuals high in psychopathy are able to cheat successfully, it may be possible to understand the strategies they may be employing to detect cheating behaviour in others. Klaver et al. (2006) found that when individuals were being deceptive, higher scores in psychopathy were associated with speaking more words, speaking for longer periods of time, speaking at a rapid pace, an increased rate of illustrator use (increased and unique hand movements), and an increased rate of blinking. The authors suggested that this may be reflecting a psychopaths need to maintain all onlookers' attention, and their need to dominate social situations. Furthermore Lee, Klaver, and Hart (2008) found that, when participants were being deceptive, the interpersonal components of psychopathy were associated with less coherent stories. This is consistent with the findings of Brinkley, Newman, Harpur, and Johnson (1999) who found that psychopathy was associated with stories that were less integrated. Lee et al.'s (2008) results were also consistent with the findings of Brinkley, Bernstein, and Newman (1999) who found that, when telling a narrative, individuals higher in psychopathic traits tended to set up expectations for their listeners when they told stories, but that they failed to resolve these introduced plot points. Klaver et al. (2006) suggests that the use of a fast speech rates and the increase and variety of body movements found in those higher in psychopathic traits who were being deceptive, may assist these individuals in overwhelming and distracting their listeners from their poor speech content. Instead of using a logical strategy by conveying a story with a consistent and complete plot, the strategy employed by those high in psychopathic traits is to dominate and distract their listeners.

Furthermore, when examining when and how individuals high in psychopathic traits are accurate in detecting deception it is apparent that emotional displays, and not logical information

that is relevant. Studies which employ high-stakes video stimuli to determine whether or not psychopathy is associated with accuracy in detecting deception have found that psychopathic traits *are* associated with accuracy (Lyons et al., 2013). Studies which employ written narratives to determine whether or not psychopathy is associated with accuracy in detecting deception have found that psychopathic traits *are not* associated with accuracy (Peace & Sinclair, 2012). Taken together this pattern of results could indicate that written narratives, which require individuals to think logically about the statements being given, about sentence structure, detail, and consistency are not consistent with the ways in which individuals high in psychopathic traits reason. High-stakes video stimuli provides the same information regarding sentence structure, detail, and consistency, yet individuals high in psychopathic traits are accurate when detecting deception from this form of stimuli. This could indicate that the additional emotional information provided by the video stimulus, such as emotional inflection of the voice and emotional expression, is what enables individual high in psychopathic traits to be accurate in detecting deception. This would be consistent with the research that suggests that the ability to detect emotions in others is paramount in detecting deception (O'Sullivan & Ekman, 2004).

Research into the treatment of psychopathy also provides evidence of a psychopath's ability to exploit their cognitive understanding of emotions to victimize others. Empathy training for example, has been shown increase recidivism in the psychopathic population (Rice, Harris & Comier, 1992). Researchers have suggested that by increasing emotional understanding in a psychopathic population, this treatment is also providing psychopaths with new information regarding how their victims feel, which they can exploit in order to victimize their victims further (Rice, Harris & Comier, 1992). This line of research provides support for the notion that

the ability to understand emotions and the willingness to manipulate emotions may be a key to understanding the psychopathic strategy.

This evidence taken together could translate into a larger evolutionary strategy, which is less involved in applied logic, and more involved in understanding and manipulating the emotions of others. This could mean that instead of employing logical means to detect cheaters and altruists, individual high in psychopathy may be using information contained in the emotional displays of others.

Truth and Deception Detection

Hypotheses 5 and 6. Partial support was found for hypothesis 5, which stated that Factor 1 scores (interpersonal manipulation and callous affect) would be associated with higher ratings of perceived deception when watching deceptive videos. Factor 1 was not a significant unique predictor, when entered into the regression with the interaction term. Conversely, partial support for hypothesis 5 can be found in Table 2, which indicates that Factor 1 scores were significantly negatively correlated with perceived deception ratings, suggesting that higher scores in Factor 1 were associated with higher ratings perceived of deception. Support was found for hypothesis 6, which stated that Factor 2 scores would moderate the relationship between Factor 1 scores and ratings of perceived deception, such that the relationship between Factor 1 scores and ratings of perceived deception would be strongest when Factor 2 was low. Results of a simple slopes analysis indicated that the slope of the low Factor 2 line was the only slope that researched significance. As such, it was apparent that the combination of high Factor 1 scores low Factor 2 scores were associated with the highest ratings of perceived deception.

Hypotheses 7 and 8. Results did not provide support for hypothesis 7, which stated that Factor 1 scores (interpersonal manipulation and callous affect) would be associated with higher

ratings of perceived truthfulness when watching truthful videos. Although Factor 1 scores were found to be a significant unique predictor of ratings of perceived truthfulness, it was in the opposite direction than was hypothesized. Specifically, it indicated that higher scores on Factor 1 were associated with ratings of less perceived truthfulness, or with higher ratings of perceived deception. Support was also not found for hypothesis 8, which stated that Factor 2 scores would moderate the relationship between Factor 1 scores and ratings of perceived truthfulness, and that the relationship between Factor 1 and ratings of perceived truthfulness would be strongest when Factor 2 was low. The interaction term in this regression failed to reach significance.

Support for hypotheses 5 through 8 was mixed. Although the pattern of results found for hypothesis 5 and 6 was as hypothesized: that higher Factor 1 scores were associated with higher ratings of perceived deception, and that Factor 2 scores significantly moderated the relationship between Factor 1 scores and ratings of perceived deception. The pattern of results testing hypotheses 7 and 8 were not expected: Factor 1 was associated with higher ratings of perceived deception, when viewing truthful videos, and a significant interaction was not found. This is somewhat contrary to the findings of Lyons et al. (2013), who found that primary psychopathy (akin to Factor 1) was associated with better than chance accuracy in detecting deception, in both truthful and deceptive conditions. The inconsistencies between the results of the current research, and the findings of Lyons et al. (2013) may be a consequence of the type of video stimuli employed by each study. Where Lyons et al. (2013) utilized plea videos, which provided a wealth of different stories, and wealth of displays of emotion (as these were high stakes personal stories). The current research employed interrogation videos taken from a study conducted in the forensic psychology lab at Brock University. The participants in this study encountered identical contrived scenarios, and thus told nearly identical stories. Furthermore,

these participants, were not placed in stressful, high stakes, or emotional situations, as this was a low stress lab based scenario. What could have occurred in the current study is that individuals who were high in psychopathic traits were not presented with enough emotional displays to safely and effectively determine whether these individuals were being deceptive or truthful.

Mealey (1995) suggests that individuals high in primary psychopathy (akin to Factor 1) are able to form decisions based purely on a cost/benefit assessment, which is informed by an individual's past interactions. Potentially, what could be occurring is that individuals high in psychopathic traits may be unwilling to make a decision about trustworthiness (which could inform whether or not these individuals are willing to enter into a parasitic relationship with a potential partner), unless they are provided with enough information to enable them to make an accurate decision about a potential victim or rival. If these individuals are employing a pure cost/benefit analysis (Mealey, 1995) they may recognize that the risk of falsely identifying a victim (who is in fact a deceptive rival), is too costly, and thus revert to a suspicious strategy, to protect themselves from paying the cost of encountering a rival. In fact, research does support the notion that psychopathy is associated with the tendency to not trust others in general (DeShong, Grant, & Mullins-Sweatt, 2015; Jonason, Kaufman, Webster, & Geher, 2013; Pereira, Huband, & Duggan, 2008; Ross, Bye, Wrobel, & Horton, 2008; Stead and Fekken, 2014; Wilks-Riley & Ireland, 2012). Studies have examined the relationship between psychopathic traits and the five factor model of personality, and have consistently found is that psychopathy is negatively associated with agreeableness, which includes a facet measuring whether or not individuals trust others (Deshong et al., 2015; Jonason et al., 2013; Pereira et al., 2008). Stead and Fekken (2014) found that total psychopathy scores were significantly negatively correlated with agreeableness, they also examined the individual facets of agreeableness and found a

significantly negative correlation between psychopathy and the trust facet of agreeableness. Ross et al. (2008) employed the schedule for non-adaptive and adaptive personality (SNAP), and found that psychopathic traits were associated with increased levels of mistrust. Wilks-Riley and Ireland (2012) examined positive and negative schemas and psychopathy. Using the newly created Schema – Positive and Negative Assessment scale (SPANNA), they found that total psychopathy, primary psychopathy, and secondary psychopathy (akin to Factor 2 psychopathy) were all significantly and positively related to SPANNA factor 1. This Factor measures the belief that others are abusive and uncaring, including the belief that others are selfish, unreliable, and the tendency to be suspicious of others (Wilks-Riley & Ireland, 2012)

There are other indications that psychopathy may be associated with, and even defined by the tendency to believe that others are not to be trusted. The SRP III (Paulhus, Hemphill, & Hare, in press) is a widely used self-report measure of psychopathy, some of the items included in this measure assess the belief that other's lack honesty, and the belief that one should cheat others before they themselves can be cheated. This suggests that the very assessment of psychopathy includes measuring the tendency to mistrust others, and believe that others are cheaters. Widom (1976) asked participants how other individuals feel, think, or behave in social situations, participants high in psychopathic traits responded that they believed that others would feel essentially the same way they do; which could imply that they would believe that cheating, manipulating, and deceiving are normative behaviours. Doninger and Kosson (2001) measured psychopathy, and had participants rate social interactions via various bi-polar constructs (friendly/unfriendly, nice/rude, aggressive/nonaggressive, rational/irrational). They found that psychopaths tended to utilize an aggressive/nonaggressive construct, more often than non-psychopaths. This suggests that individuals high in psychopathic traits may employ a

watchfulness for aggression, when assessing the behaviour of others. The literature examining whether or not psychopathic individuals trust others indicates that individuals high in psychopathic traits may see others as untrustworthy, as cheaters, as selfish, as being unreliable and as being prone to aggression. This could explain why, when there is a paucity of information available to them, they may default to believing that all others are cheaters, in order to prevent them from mistakenly entering into a relationship that will cost them instead of serve them. For example, this strategy may protect these individuals from incorrectly perceiving another individual as a good candidate for victimization, when in fact this individual is a predator in the same manner that they themselves are. The current research supports the idea that when adequate information is not provided, that those who are high in psychopathic traits may revert to a tendency to believe that all others are dishonest cheaters who are not to be trusted.

A second explanation of our findings is that individuals high in psychopathic traits are no better than non-psychopaths at detecting deception. The strategy that they employ is not based on accuracy, but rather on the tendency to mistrust all others. The research that indicates that psychopathy is associated with the tendency to mistrust others (DeShong et al., 2015; Jonason et al., 2013; Pereira et al., 2008; Ross et al., 2008; Stead and Fekken, 2014; Wilks-Riley & Ireland, 2012), paired with the results of this study does suggest that this is a reasonable explanation. If Mealey's (1995) assertion is correct, and that individual high in psychopathic traits are implementing a cost benefit analysis to assess their interactions with others, then what could potentially be occurring is that these psychopathic individuals find it too risky to trust others. It could be too costly to assume anyone is trustworthy, and risk engaging another cheater by mistake, thus individuals high in psychopathic traits implement the safer strategy of failing to trust in general. This mistrusting strategy could also explain the aggression associated with the

Cheater Warrior-Hawk strategy attributed to psychopathy (Book & Quinsey, 2004; Coyne & Thomas, 2008). This use of aggression could be another protective factor involved in the adaptive strategies associated with psychopathy. The results of this research suggest that psychopathy may not be associated with accuracy in cheater detection, but rather with suspicion. A psychopath's use of aggression during encounters with others could be a means of ensuring that they are not burned, deceived, or cheated by others. Their strategy could be to employ a "get them before they get me" attitude, regardless of the type of individual they are encountering. The item on SRP-III that assesses a participant's belief that they should cheat others before they can be cheated themselves, may measure this tendency to aggress against others as a protective strategy (Paulhus, Hemphill, & Hare, in press). Perhaps the strategy employed by individuals high in psychopathy is to develop a reputation as an individual who is willing to indiscriminately aggress against others as a means of protecting themselves from the population that they perceive as untrustworthy.

Psychopathy Detecting Psychopathy

Hypothesis 9 and 10. Results failed to provide support for hypotheses 9, which stated that Factor 1 scores would be associated with greater accuracy in detecting psychopathic traits in others when rating them on items of the Self-Report Psychopathy Scale: Version III (Paulhus, Hemphill, & Hare, in press). Although Factor 1 scores were related to more accuracy at the bivariate level (see Table 2), when they were entered into a regression with Factor 2 scores (which were also related to more accuracy at the bivariate level (see Table 2)) with the interaction term, it failed to reach significance. Moreover, no support was found for hypothesis 10, which stated that the relationship between Factor 1 scores and mean absolute difference scores would be moderated by Factor 2 scores, such that the relationship between Factor 1 scores

and mean difference scores would be strongest when Factor 2 scores were low. Support was also not found for hypothesis 10, as the interaction term was not significant. Although each individual variable and the interaction term failed to be significant individual predictors, the model on its own was significant. This indicates that although neither Factor 1 scores nor Factor 2 scores of psychopathy were significant on their own, together (or total psychopathy) they did significantly predict greater accuracy when rating the psychopathic traits of other.

Although support was not found for hypotheses 9 or 10, by examining the bivariate correlations it is apparent that both Factor 1 and Factor 2 are associated with greater accuracy when rating psychopathic traits in others. Moreover, by examining the supplementary analysis (Table 11) it is apparent that total psychopathy scores are a significant negative predictor of difference scores. Suggesting that higher total psychopathy scores are associated with lower difference scores, this indicates that the psychopathy ratings provided by individuals who were higher in total psychopathy were closer to the actual psychopathy scores of the individuals in the videos.

These results provide support for the assertion that psychopathy may be a frequency-dependant life history strategy, and that the ability to perceive other cheaters may be necessary in order for this strategy to be successful. This ability may aid those who are employing a cheating strategy to avoid individuals with which it would be costly to enter into an interaction with. Mealey (1995) suggests that individuals high in psychopathy may be utilizing a pure cost/benefit analysis of social interactions. It is much safer and more advantageous for an individual high in psychopathic traits to be able to identify individuals which would require little effort to exploit, as opposed to paying the costs associated with attempting to cheat someone who is, in turn, attempting to cheat them, and risk not receiving any payoff.

Research has indicated that psychopathy is associated with the ability to detect traits such as vulnerability from short video clips of individuals walking down a hallway (Wheeler et al., 2009). Book et al. (2007) found positive associations between psychopathy scores and accuracy of emotional intensity ratings of photographed faces, they also found that psychopathic traits were associated with accurately judging assertiveness ratings from short video clips. The current research supports the notion that psychopathy is also associated with the ability to detect psychopathy in others. Taken together with previous research (Book et al., 2007; Wheeler et al., 2009), this could indicate that psychopathy may be associated with the ability to create accurate impressions of others with only minimal evidence provided to them.

Implications

This study provides support for a newly emerging evolutionary perspective for studying psychopathy. It provides insights into certain mechanisms that may be employed by individual high in psychopathy, mechanisms that could potentially serve evolutionary purposes. This research helps to illuminate how parasitic and predatory individuals such as those individuals high in psychopathic traits are able to successfully navigate their environment. Furthermore, understanding the motivation, strategies, and thought processes of individual high in psychopathy is extremely important. These individual have been described as “intraspecies predators” who use charm and manipulation to victimize those around them (Hare, 1996, p. 26), furthermore it is believed that psychopaths make up around 1% of the general population (Hare, 1996), and thus these individual pose a great threat to the non-psychopathic community, and the ability to educate the public about these predatory individuals is essential.

Although this study was unable to completely replicate the findings of Lyons et al.’s (2013), if future studies are able to do so, then findings regarding how and why psychopaths are

able to be more accurate in detecting deception will be very important. Our findings did support the notion that psychopathy is associated with the ability to detect psychopathy in others, and this research is also very important. Research programs focusing on understanding how psychopaths are able to detect deception and psychopathy in others can be useful in the training of police officers, border security personnel, and individual in a parole setting. These individuals are frequently exposed to deception and to psychopathic individuals, and an improved ability to detect deception and psychopathy could potentially make them more efficient in the distribution of justice.

Limitations

This study employed correlational cross-sectional data, although this method of data collection is often employed in personality research, it does limit our ability to indicate directionality and causality. Although theoretically the current work proposes that the sequence of effects follow the pattern of psychopathy emerging first, and then the talent of cheater and deception detection flowing later from characteristics of the already present psychopathy. This cannot be said with any certainty until longitudinal or experimental research establishes temporal precedence.

A further limitation of this study was the specific video set employed in the deception detection and psychopathy detection portions of this study. These videos were a part of a previous study that was run out of the Forensic Psychology lab at Brock University, and as such had each participant experience and disclose a specific chain of events. Consequently, each video and story was nearly identical in nature. Furthermore, as these stories were given in a lab setting, each participant knew that the emotional stakes of the deceptions and truths they were discussing were fairly low. Moreover, the stories told by these participants likely lacked a wealth of

emotional information as these stories were both impersonal in nature, and lacking any emotional connection, as the chain of events they experienced were staged, and as the participants were aware that they were never in any salient danger. As such, these videos may have failed to provide the participants of this study with enough emotional displays to make accurate predictions about the veracity of each story. This could potentially explain why our participants reverted to a generally suspicious/untrusting strategy. Mealey (1995) suggests that those high in psychopathy employ pure cost/benefit decision making, and the risk of inadvertently encountering a cheater based on an uninformed decision, could be considered too risky/costly. Thus, those high in psychopathy may revert to a tendency to mistrust others, to prevent themselves from entering into an unpredictable costly encounter.

Future Directions

This study could be expanded and improved upon in several different areas. The next study in this program of research would implement plea videos, such as the ones utilized in the Lyons et al. (2013), and Baker et al. (2013) studies. Plea videos offer a wealth of emotional displays, as they are not contrived, and are very high stakes in nature (if an individual in the video is being deceptive, and is responsible for the missing person, then their being discovered as deceptive would result in their incarceration). As such, these videos would provide individuals viewing them with a wealth of different stories, and a great deal of emotional information from which to gleam veracity.

Furthermore, in future studies it would be important to test a mediational model based on the characteristics of psychopathy that are hypothesized to be associated with accuracy in detecting deception (see Figure 5). This mediational model would include a measure of the frequency and versatility of deception employed by our participants, this is based on the findings

that suggest practice with deception is critical in the detection of deception (O'Sullivan & Ekman, 2004). This model would control for the lack of empathy components in the psychopathy measure employed, and would implement an empathy measure, to test the assertion that a lack of empathy may aid in the detection of deception (Baker et al., 2013). Finally, this model would include a measure of accuracy in detecting emotions from facial expressions, this is based on the research that suggests that the ability to detect emotions from facial expression is essential in the detection of deception (Frank and Ekman, 2004; O'Sullivan & Ekman, 2004; Shaw, Porter, & ten Brinke, 2013). Testing this model would allow researchers to determine if the proposed mechanisms suggested to facilitate accuracy in detecting deception are in fact contributing to accuracy.

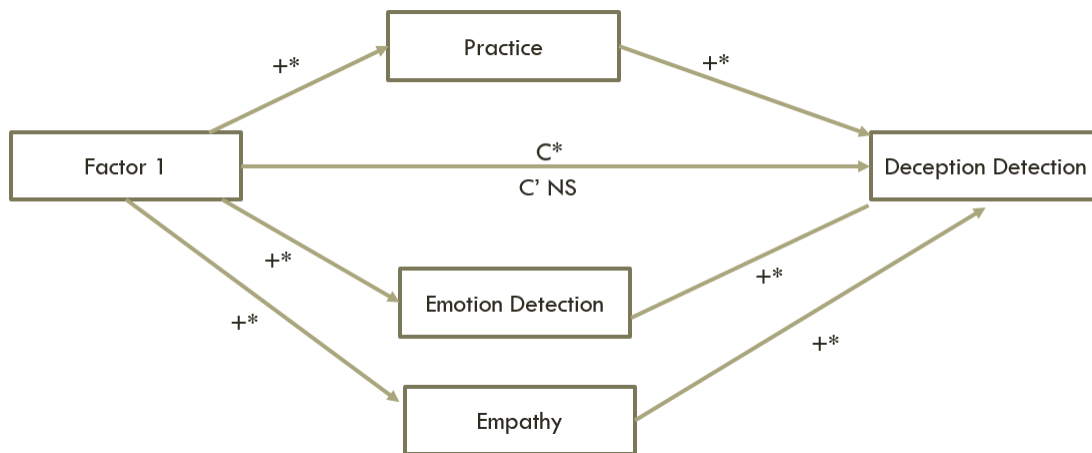


Figure 5. Proposed mediational model for future studies.

A final step in this research program could potentially include the development of a training program based on the results of the mediational study suggested above. If the use of plea videos, and the suggested mediators result in a significant model, then an experimental design could be utilized. Participants could be assigned to either a training group or a control group. The training group would take part in a program designed to mimic the specific techniques used by

psychopaths to detect deception. This program could potentially include deception exposure training, training on identifying emotions from facial expression, and finally training that enables participants to “think like a psychopath” and block out their empathetic responses (if each of these proved to be successful mediators). A pre-test/post-test design could be implemented to examine the ability of this program to improve participants’ accuracy in deception detection. If successful, this study could provide causal support suggesting that the specific strategies employed by those high in psychopathy results in accuracy in detecting deception.

If, however, future studies fail to replicate the Lyons et al. (2013) results, this could indicate that individuals higher in psychopathic traits are not, in fact, more adept at identifying deception, but instead may be employing a strategy that involves a lack of trust in any other human beings. Thus future studies should also aim to test whether or not this mistrusting strategy is being implemented by those high in psychopathic traits. Studies could implement a paradigm such as the decomposed altruism game developed by Lange et al. (1997). Instead of asking participants to respond, participants could be given profiles of different types of individuals (some profiles being more altruistic in nature), and ask participants how these individuals would play the game. If individuals higher in psychopathy tend to think all others (including more altruistic individuals) will be selfish in nature, this could suggest a general mistrusting strategy. By comparing studies that test both the deception detection and mistrusting strategies a better understanding can be found regarding how individuals higher in psychopathic traits are able to be successful.

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Appendix A

Certificate of Ethics Clearance for Human Participant Research

Brock University

Research Ethics Office

Tel: 905-688-5550 ext. 3035

Email: reb@brocku.ca

DATE: 6/2/2014

PRINCIPAL INVESTIGATOR: BOOK, Angela - Psychology

FILE: 13-279 - BOOK

TYPE: Masters Thesis/Project STUDENT: Tabitha Methot

SUPERVISOR: Angela Book

TITLE: The Detection of Cheating and Deception

ETHICS CLEARANCE GRANTED

Type of Clearance: NEW Expiry Date: 6/30/2015

The Brock University Social Sciences Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement. Clearance granted from **6/2/2014** to **6/30/2015**. The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before **6/30/2015**. Continued clearance is contingent on timely submission of reports. To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page at <http://www.brocku.ca/research/policies-and-forms/research-forms>.

In addition, throughout your research, you must report promptly to the REB:

- a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants;
- c) New information that may adversely affect the safety of the participants or the conduct of the study;
- d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.

Approved:

Jan Frijters, Chair

Social Sciences Research Ethics Board

Note: Brock University is accountable for the research carried out in its own jurisdiction or under its auspices and may refuse certain research even though the REB has found it ethically acceptable. If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of research at that site.

Appendix B

Consent Form

The Detection of Cheating and Deception Information and Consent Form

Date: January 2014

Principal Student Investigator:

Tabitha Methot

Graduate Student

Department of Psychology

Brock University

tm06ti@brocku.ca

Faculty Supervisor:

Dr. Angela Book

Associate Professor

Department of Psychology

Brock University

abook@brocku.ca

(905)688-5550 ext. 5223

Purpose:

- The purpose of this study is to determine whether certain individuals are better than others at detecting cheating, deception, and altruism.

What is Involved:

- As a participant you will be asked to complete some questionnaires about your behaviours, attitudes, and personality. You will watch eight short (2 minute) videos, and provide ratings about each of these videos. You will then complete several short logic problems designed to test your ability to detect cheating and altruistic behaviour.
- Participation will take approximately 1.5 hours of your time.
- Following the completion of this study you will be provided with a debriefing form outlining the full purpose of this study.

Potential Risks and Benefits:

- Some of the items of our questionnaire relate to negative behaviors, including criminal behavior, and may cause some slight discomfort or embarrassment.
- Participation in this study may give you a better understanding of psychological research methods.
- Results of this study are likely to contribute to a better scientific understanding of how and why certain individuals are better at detecting deception, cheating, and altruism, and how their specific personality characteristics can contribute to their accuracy.

Compensation:

- You will be awarded \$2.50 for participating in this study

Confidentiality:

- Information you provide will be kept confidential. Your name will not appear on the questionnaires or the rating sheet.
- Because our interest in the average responses of the entire group of participants, you will not be identified individually in any way in the written reports of this research as there will be no way to connect your name back to any specific data provided.
- Data will be stored in a locked laboratory, and will only be accessed by the researchers. Data will be destroyed 5 years following publication

- Please note that, Mechanical Turk and Qualtrics are based in the United States and therefore are subject to American Homeland Security laws such as the Patriot Act.

Voluntary Participation:

- Participation in this study is voluntary.
- If you wish you may decline to answer and question or decline to participate in any component of this study.
- You may decide to withdraw from this study at any time during the research session by informing the researcher, with no penalty, and your data will be destroyed in front of you, and you will still receive your compensation.
- It will not be possible to withdraw after the research session has been completed as the data are anonymous.

Publication of Results:

- Results of this study may be published in professional journals and presented at conferences.
- Feedback about this study will be available upon request from Tabitha Methot tm06ti@brocku.ca in January 2015.

Contact Information and Ethics Clearance:

- If you have any questions about this study or require further information, please contact the Principal Student Investigators or the Faculty Supervisor using the contact information provided above.
- This study has been reviewed and received ethics clearance through the Research Ethics Board at Brock University (File # 13-279). If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at (905)688-5550 ext 3035, or reb@brocku.ca

Thank you very much for your assistance in this project!

- I have read the above information and I agree to participate in this study described above. I have made this decision based on the information that I have read in the Information and Consent Form. I have had the opportunity to receive any additional details I wanted about this study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

Appendix C

The Detection of Cheating and Deception Feedback and Information Letter

Thank you for participating in this study!

The study you have just participated in is about the differences between individuals' ability to detect cheating, altruism, and deception, as well as other personality traits. We are interested in whether certain individuals are more accurate in these detections than others.

In this study participants view videos of individuals proclaiming their innocence in the involvement of a stolen wallet. Half of these stories were truthful half of them were not. We also had you complete several logic problems designed to test whether or not you could accurately detect cheaters and altruists in written narratives.

We are interested in understanding whether certain antisocial personality traits and behaviors enable certain individuals to be more accurate in the detection of deception, cheating, and altruism. This research may provide insight into how certain personality types, previously considered dysfunctional maybe adaptive in nature, and may actually provide individuals within this framework with certain abilities (e.g. the ability to detect cheating and deceiving).

Should you feel that any of these questions caused you distress or discomfort, please feel free to contact please contact your local crisis line. Or, to find a therapist in your area, please see <http://locator.apa.org/>

Should you have any questions or concerns regarding this study, please feel free to contact the principal student investigator Tabitha Methot, at the email address provided below. Alternatively, you may contact the faculty supervisor, Dr. Angela Book at abook@brocku.ca.

The results of this research will be available from the faculty supervisor in January of 2015. If you would like to receive information about the results of this research, please send an email to tm06ti@brocku.ca at that time.

Thank you once again for your time!

Tabitha Methot

Graduate Student Department of Psychology

tm06ti@brocku.ca

Appendix D

MTURK Advertisement

Questionnaires : The Detection of Cheating and Deception

In this study, participants will complete a questionnaire about their behaviours and attitudes, and watch several short video clips and provide ratings about these videos. Participant will then complete several short logic problems designed to test their ability to detect cheating and altruistic behaviour. Participants must be over the age of 18, whose first language is English and who live in the United States. This study takes about 1.5 hours.

Must have Quick Time Player

Compensation of \$2.50 CAN.

Survey link: _____

There will be a confirmation code at the end of the debriefing form. Please, enter your confirmation code in the box below.

*

* Need code or script to stop people from taking it without completing multiple times in order to be paid multiple times (does not identify people, confidentiality is maintained)

Appendix E

Facebook Advertisement

Hello Everyone, I am looking for people who are interested in participating in a study!

Questionnaires : The Detection of Cheating and Deception

In this study, participants will complete a questionnaire about their behaviours and attitudes, and watch several short video clips and provide ratings about these videos. Participant will then complete several short logic problems designed to test their ability to detect cheating and altruistic behaviour. Participants must be over the age of 18, whose first language is English. This study takes about 1.5 hours.

Faculty Supervisor :

Dr. Angela Book

Associate Professor

Department of Psychology

Brock University

abook@brocku.ca

(905)688-5550 ext. 5223

This research has been reviewed and received ethics clearance through the REB at Brock University, File #

Survey link: _____

Appendix F

Demographics

1. Male/Female
2. Age: _____
3. Race: _____
4. Nationality: _____
5. Please indicate your education level
 - a. Some high school
 - b. Completed high school
 - c. Some post-secondary education
 - d. Completed post-secondary education
 - e. Graduate school (MA/PhD)
6. Occupation: _____

Appendix G

SRP III – R11

Please rate the degree to which you agree with the following statements about you. You can be honest because your name will be detached from the answers as soon as they are submitted.

1	2	3	4	5
Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly

1. I'm a rebellious person.
2. I'm more tough-minded than other people.
3. I think I could "beat" a lie detector.
4. I have taken illegal drugs (e.g., marijuana, ecstasy).
5. I have never been involved in delinquent gang activity.
6. I have never stolen a truck, car or motorcycle.
7. Most people are wimps.
8. I purposely flatter people to get them on my side.
9. I've often done something dangerous just for the thrill of it.
10. I have tricked someone into giving me money.
11. It tortures me to see an injured animal.
12. I have assaulted a law enforcement official or social worker.
13. I have pretended to be someone else in order to get something.
14. I always plan out my weekly activities.
15. I like to see fist-fights.
16. I'm not tricky or sly.
17. I'd be good at a dangerous job because I make fast decisions.
18. I have never tried to force someone to have sex.
19. My friends would say that I am a warm person.
20. I would get a kick out of 'scamming' someone.
21. I have never attacked someone with the idea of injuring them.

22. I never miss appointments.
23. I avoid horror movies.
24. I trust other people to be honest.
25. I hate high speed driving.
26. I feel so sorry when I see a homeless person.
27. It's fun to see how far you can push people before they get upset.
28. I enjoy doing wild things.
29. I have broken into a building or vehicle in order to steal something or vandalize.
30. I don't bother to keep in touch with my family any more.
31. I find it difficult to manipulate people.
32. I rarely follow the rules.
33. I never cry at movies.
34. I have never been arrested.
35. You should take advantage of other people before they do it to you.
36. I don't enjoy gambling for real money.
37. People sometimes say that I'm cold-hearted.
38. People can usually tell if I am lying.
39. I like to have sex with people I barely know.
40. I love violent sports and movies.
41. Sometimes you have to pretend you like people to get something out of them.
42. I am an impulsive person.
43. I have taken hard drugs (e.g., heroin, cocaine).
44. I'm a soft-hearted person.
45. I can talk people into anything.
46. I never shoplifted from a store.
47. I don't enjoy taking risks.
48. People are too sensitive when I tell them the truth about themselves.
49. I was convicted of a serious crime.
50. Most people tell lies every day.
51. I keep getting in trouble for the same things over and over.
52. Every now and then I carry a weapon (knife or gun) for protection.
53. People cry way too much at funerals.

- 54. You can get what you want by telling people what they want to hear.
- 55. I easily get bored.
- 56. I never feel guilty over hurting others.
- 57. I have threatened people into giving me money, clothes, or makeup.
- 58. A lot of people are “suckers” and can easily be fooled.
- 59. I admit that I often “mouth off” without thinking.
- 60. I sometimes dump friends that I don’t need any more.
- 61. I would never step on others to get what I want.
- 62. I have close friends who served time in prison.
- 63. I purposely tried to hit someone with the vehicle I was driving.
- 64. I have violated my probation from prison.

Appendix H

Wason Selection Task (Altruist-Detection)

You have been offered an excellent job in your field in New York City. Although you are excited about this great career opportunity, you are worried about finding friends who can help you deal with the transitional adjustments of living in a new city. Coupled with the fact that recent studies have shown that there are many people who cannot be trusted in New York City, your worries are justified. You would like to have close friends who will not take advantage of you in the workplace, nor in personal life.

You wish to base your friend choice on how genuinely concerned they are for others. Thus, you decide to befriend anyone who gives to others and does not ask for anything in return. In the same building where you work, a health clinic has set up temporary facilities for giving blood. Many people from your office plan to give blood, and you consider this a good opportunity to meet potential friends. The clinic is desperately in need of blood supplies and is willing to offer a small cash payment to each person who gives their blood. Of course, the idea of accepting payment for such a good deed is not something you would do. Similarly, you consider anyone who does accept payment for giving blood to not be as selfless as they appear, and thus not someone you wish to befriend. Therefore, those co-workers who follow the rule below are not considered to be an accepted friend to you:

“If they give blood, then they accept payment.”
[If they accept payment, then they give blood]

The four cards below have information about four co-workers. One side of each card has information about whether or not they gave blood, and the other side of each card has information about whether or not they accepted payment. Indicate only the card(s) that you definitely need to turn over to determine if any of your co-workers are potential friends.

Accepts Payment	Does not Accept Payment	Gives Blood	Does not Give Blood
(P)	Not (P)	(Q)	Not (Q)

Altruism Version #2

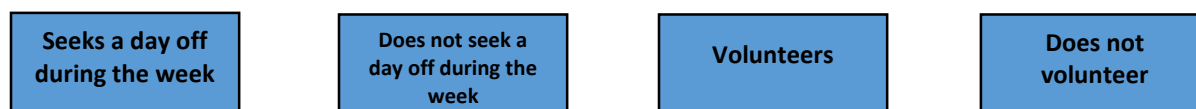
Imagine that you take a job with a company. Although you are excited about future career opportunities, you worry about finding friends who will help you in business. You would like to have close friends who would not take advantage of you in the workplace or in your personal life.

The company that hired you encourages employees to volunteer. For example, on weekends, some employees participate in activities such as community cleanup or helping handicapped persons; however, since few employees are willing to volunteer, the company institutes a rule: if an employee volunteers on the weekend, then he or she can take a day off. So, you consider coworkers who do not follow the rule below acceptable as friends:

“If they volunteer, then they take a day off during the week.”
 [If they take a day off during the week, then they volunteer]

The four cards below display information about four coworkers. One side of each card displays information about whether or not they volunteer, and the other side displays information about whether or not they take a day off.

Indicate only the card(s) that you definitely need to turn over to determine if any of your coworkers are potential friends.



Altruism Detection #3

Imagine that you have had a newborn baby within the past year and you decided to go back to work. You are now in need of a trustworthy babysitter. Because there has been recent media reports of baby-sitters who have abused children, you have to be extra careful to select a sitter who will genuinely care for your child. But you do not want to hire someone simply because they have babysat before. Instead, you wish to base your decision on how genuinely concerned the person is for the welfare of others. This quality often can be demonstrated when people volunteer within the community without receiving material rewards of any kind.

Therefore, you decide to hire someone who volunteers to help sick children on his or her days off for the sake of helping rather than for self-gain or academic credit (for example: volunteering for extra school credit or volunteering just to improve his or her resume). As a result, those candidates who observe the following rule are considered unacceptable to care for child:

“If they volunteer, then they seek credit.”
 OR
 [If they seek credit, then they volunteer.]

The cards below have information about four potential candidates. One side of each card tells you whether or not a candidate volunteers and the other side of each card tells you whether or not they seek credit.

Choose only the card(s) you definitely need to turn over to determine whether a candidate is acceptable to you as a babysitter.



Altruism Detection Version #4

You are responsible for selecting an individual from within a group of people who donate goods to a not for profit organization. This individual will receive an award to reward his or her altruistic behaviour. You want to reward this individual for donating items without ever seeking anything in return, a very altruistic act.

However, there are individuals who, when they donate items, receive a coupon as a thank you for donating. Those candidates who observe the following rule are considered unacceptable to receive this award:

“If I donate goods, then I receive a coupon”

[If I receive a coupon, then I donate goods]

The four cards below have information about four individuals. One side of each card has information about whether or not they donated goods, and the other side of each card has information about whether or not they accepted a coupon. Indicate only the card(s) that you definitely need to turn over to determine if any of these individuals are eligible to receive this reward.



Altruism Detection #5

You are on a board at a local university responsible to giving out scholarships. You are looking for an individual who embodies altruism, to receive an award for selflessness. You feel that individuals who give up their time without thought or recognition would suit this award perfectly. And so, you plan on looking for individuals who have volunteered as a tutor for other student, and who have not listed this on their resume in an attempt to look more desirable. You feel that individuals who volunteer without ever reporting it are truly deserving of this reward.

Based on this rule you feel that individuals who follow the rule below are unacceptable to receive this award:

“If they volunteer as a tutor, then they report it on their resume”

[Only if they report it on their resume, do they volunteer as a tutor]

The four cards below have information about four individuals. One side of each card has information about whether or not they volunteered as a tutor, and the other side of each card has information about whether or not they reported their volunteering on their resume. Indicate only the card(s) that you definitely need to turn over to determine if any of these individuals are eligible to receive this award.



Appendix I

Wason Selection Task (Cheater Detection) Version #1

You are an anthropologist studying the Kaluame, a Polynesian people who live in small warring bands on Maku Island in the Pacific. You are interested in how Kaluame “big men” – chieftains- wield power.

“Big Kiku” is a Kaluame big man who is known for his ruthlessness. As a sign of loyalty, he makes his own “subjects” put a tattoo on their face. Members of other Kaluame bands never have facial tattoos. Big Kiku has made so many enemies in other Kaluame bands that being caught in another village with a facial tattoo is, quite literally, the kiss of death.

Four men from different bands stumble into Big Kiku’s village, starving and desperate. They have been kicked out of their respective villages for various misdeeds, and have come to Big Kiku because they need food badly. Big Kiku offers each of them the following deal:

“If you get a tattoo on your face, then I’ll give you cassava root”
[If you receive cassava root, then you must have a tattoo on your face]

Cassava root is a very sustaining food which Big Kiku’s people cultivate. The four men are very hungry, so they agree to Big Kiku’s deal. Big Kiku says that Tattoos must be in place tonight, but the cassava root will not be available until the following morning.

You learn that Big Kiku hates some of these men for betraying him to his enemies. You suspect he will cheat and betray some of these men. Thus, this is a perfect opportunity for you to see firsthand how Big Kiku wields his power.

The cards below have information on them about the fates of the four men. Each card represents one man, one side of the card tells whether or not the man went through with the facial tattoo that evening and the other side of the card tells whether or not Big Kiku gave that man cassava root the next day.

Did Big Kiku get away with cheating any of these four men? Indicate only the card(s) you definitely need to turn over to see if Big Kiku has broken his word to any of these four men.

Got Tattoo	No Tattoo	Big Kiku gave him nothing	Big Kiku gave him cassava root
(P)	Not (P)	Not (Q)	(Q)

Cheating Version #2

You are an anthropologist studying the Kalama tribe. Kalama teenagers like to go out at night, to party and visit with their friends.

But teenagers are expected to help out around the house. The Kalama are farmers and it is a teenager's duty to milk the family cow. So the tribal elders have made the following rule for teenagers:

“If you go out at night, then you must first milk the family cow.”
[First the cow must be milked, then you go out at night]

You are interested in whether teenagers obey this rule, so yesterday you watched what some of them did. The documents below represent four teenagers who you watched last night. Each document represents one teenager. Each document is partially covered, and you can only see either whether or not the teenager went out last night, or whether that teenager first milked the cow.

Circle only those card(s) you definitely need to uncover to see if any of these teenagers have violated the rule.



Cheater Version #3

Imagine yourself helping with registration at an academic conference. A party is held during the conference and participants are asked to pay if they want to attend; however, there are many conference participants, and some of them are sneaking into the party without paying. So, the conference organizer requests that participants who have already paid put a sticker on their badges, and makes a rule:

“If they put a sticker on their badges, then they join the party.”
[If they join the party, then they put a sticker on their badges]

You are asked to check whether participants follow the rule. The four cards below display information about four participants. One side of each card displays information about whether or not they put a sticker on their badges, and the other side of each card displays information about whether or not they join the party.

Indicate only the card(s) that you definitely need to turn over to determine if the participants follow the rule.



Cheater Version #4

You are a Kaluame, a member of a Polynesian culture found only on Maku Island in the Pacific. The Kaluame have many strict laws which must be enforced, and the elders have entrusted you with enforcing them. To fail would disgrace you and your family.

Among the Kaluame, when a man marries, he gets a tattoo on his face; only married men have tattoos on their faces. A facial tattoo means that a man is married, an unmarked face means that a man is a bachelor.

Cassava root is a powerful aphrodisiac—it makes the man who eats it irresistible to women. Moreover, it is delicious and nutritious—and very scarce.

Unlike cassava root, molo nuts are very common, but they are poor eating—molo nuts taste bad, they are not very nutritious, and they have no other interesting “medicinal” properties.

Although everyone craves cassava root, eating it is a privilege that your people closely ration. You are a very sensual people, even without the aphrodisiacal properties of cassava root, but you have very strict sexual mores. The elders strongly disapprove of sexual relations between married people, and particularly distrust the motives and intentions of bachelors.

Therefore, the elders have made laws governing rationing privileges. The one you have been entrusted to enforce is as follows:

“If a man eats cassava root, then he must have a tattoo on his face.”

[“If a man has a tattoo on his face, then he eats cassava root.”]

Cassava root is so powerful an aphrodisiac that many men are tempted to cheat on this law whenever the elders are not looking. The cards below have information about four young Kaluame men sitting in a temporary camp; there are no elders around. A tray filled with cassava root and molo nuts has just been left for them. Each card represents one man. One side of a card tells which food a man is eating, and the other side of the card tells whether or not the man has a tattoo on his face.

Your job is to catch men whose sexual desires might tempt them to break the law—if any get past you, you and your family will be disgraced. Indicate only those card(s) you definitely need to turn over to see if any of these Kaluame men are breaking the law.

Eats cassava root	Eats molo nuts	No tattoo	Tattoo
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Cheater Version #5

The Namka are a hunter-gatherer people who live in small bands in the deserts of southwest Africa. You are an anthropologist interested in whether members of different Namka bands can trust each other.

Bo is a crafty old Namka man in the band you are studying. He is always accidentally breaking his ostrich eggshell and would like to “stockpile” some—the Namka use ostrich

eggshells as canteens because they are light and hold lots of water. He sees his opportunity when four men from a neighbouring band stumble into camp one morning.

The four men have been on a long and unsuccessful hunting expedition. They are hungry, and they want to be able to bring meat back to their families. Bo approaches each man privately and offers him the following deal:

“If you give me your ostrich eggshell, then I’ll give you duiker meat.”
[“If I give you duiker meat, then you must give me your ostrich eggshell.”]

Bo explains that his wife is skinning the duikers today, and they won’t be ready until tomorrow. However, he will need the eggshell by this evening for his son, who is leaving tonight on a weeklong hunting expedition. Each agrees to meet him alone in a secluded spot tomorrow to consummate the deal.

You find this deal interesting, because you happen to know that Bo, who is a rather unscrupulous character to begin with, has very little duiker meat and a large family to feed. It is perfectly possible that he will cheat some of these men. You decide to “spy” on Bo and see.

The cards below have information about the four deals Bo made with these four men. What happened in one deal had no effect on the outcome of any other deal. Each card represents one man. One side of a card tells whether or not the man gave his ostrich eggshell to Bo that evening, and the other side of the card tells whether or not Bo gave that man duiker meat the next day.

Did Bo get away with cheating any of these four men? Indicate only those card(s) you definitely need to turn over to see if Bo has broken his word to any of these four men.

**Bo gave him
nothing**

**Bo gave him
duiker meat**

**He gave his ostrich
eggshell to Bo**

**He gave Bo
nothing**

Appendix J

Video Questions

Please read carefully.

The following screen will contain a video, you will need to watch this video closely. Try to get a good impression of the person in the video.

The video will play automatically, and once complete the screen will automatically progress to the next question.

How truthful do you feel this person's story was?

Very Deceptive - - - - - - - - Very Truthful

Please indicate how you would rate the individual within the video on the following questions

The person in the video seem as though they would purposely flatter people to get them on their side.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video doesn't seem tricky or sly.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video seem as though they would get a kick out of ‘scamming’ someone.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video seem as though they would find it difficult to manipulate people.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video seem as though they believe they should take advantage of other people before people do it to them.

Strongly Disagree Disagree Neutral Agree Strongly Agree

People would sometimes say that the person in the video was cold-hearted.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Sometimes the person in the video has to pretend they like people to get something out of them.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video gets what they want by telling people what they want to hear.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video believes a lot of people are “suckers” and can easily be fooled.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video would never step on others to get what they wanted.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video would do something dangerous just for the thrill of it.

Strongly Disagree Disagree Neutral Agree Strongly Agree

The person in the video has never been arrested.

Strongly Disagree Disagree Neutral Agree Strongly Agree